AIR TRAILS®

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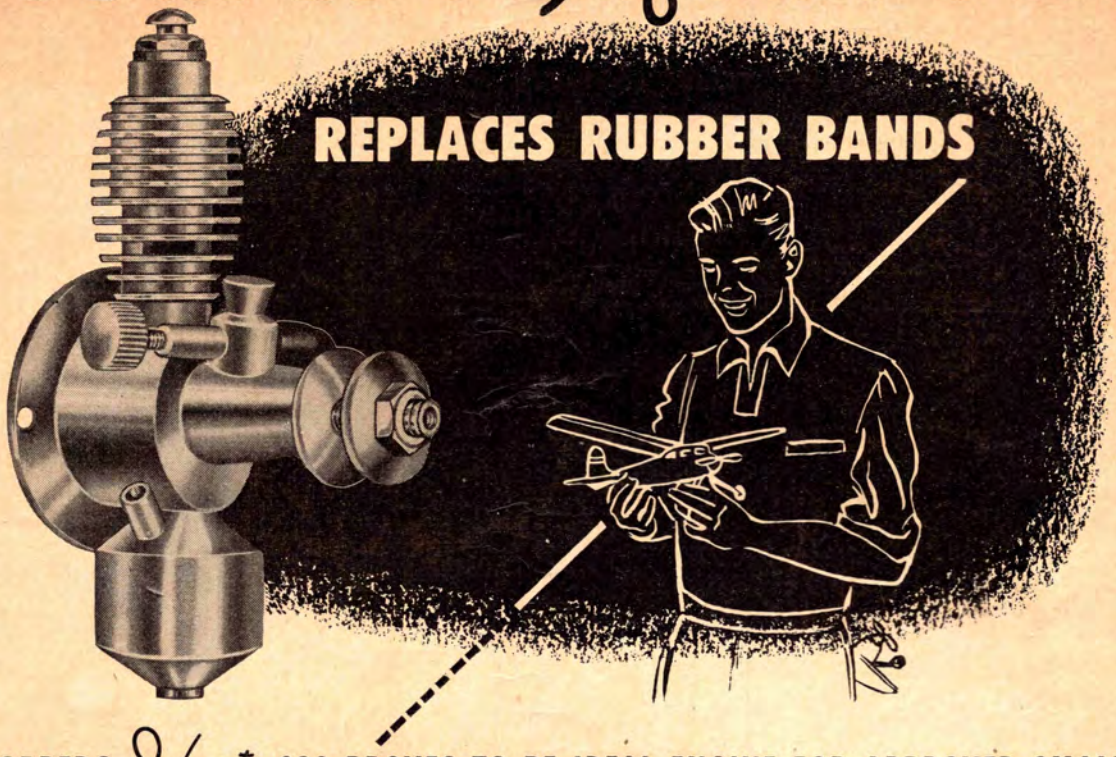
FEBRUARY 1951

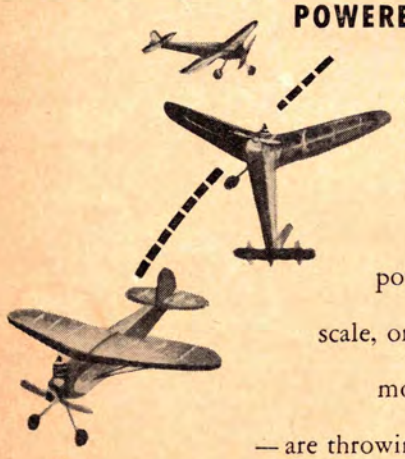
MEET AMERICA'S AEROBATIC CHAMP

How's Your Air I. Q.?—See Page 24

TORPEDO *Infant* POWER



TORPEDO *Infant* .020 PROVES TO BE IDEAL ENGINE FOR APPROVED SMALL RUBBER POWERED KITS. WRITE TO US FOR RECOMMENDATIONS.



The Infant—the world's smallest production made glow ignition engine—handles small rubber powered kits perfectly in free flight, scale, or control line flying. Everywhere modelers—beginners and advanced—are throwing away the old fashioned rubber band and putting Torpedo Infant power in K&B approved small rubber powered kits. Easy to install, the Infant is recommended by many kit manufacturers as the best engine on the market for their small kits.

BEGINNERS—Graduate to real horsepower. Enjoy the real thrills of a powered flight. You can do it for only $4.95. Buy an Infant today.

ADVANCED—If you would like to be first, be the first in your town to own "a world's smallest gas powered airplane". You can do it by using Torpedo Infant power in place of rubber bands.

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Below is shown a group of recent Parks graduates. To the right are listed the unlimited opportunities for these Parksmen in aviation. At Parks College you may specialize in aeronautical engineering, air transportation, or aircraft maintenance engineering . . . and take advantage of these unlimited opportunities.

The September, 1950, graduating class of Parks College of Saint Louis University.

As the aviation college of the first university west of the Mississippi, Parks offers a tri-semester program leading to the bachelor of science degree in aeronautics . . . and you earn your degree in three years instead of the customary four.

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MAINTENANCE ENGINEERING

1. Aircraft Mechanic
2. Engine Mechanic
3. Crew Chief
4. Flight line Mechanic
5. Inspector
6. Equipment Dispatcher
7. Engine overhaul mechanic
8. Aircraft overhaul mechanic
9. Production control engineer
10. Flight engineer
11. Specialist mechanics in Hydraulics, Electrical Systems, Propellers, Radio, Instruments, Heating and Pressurization
12. Engineering and maintenance liaison engineer
13. Service Representative
14. Experimental test engineer
15. Airport Maintenance Operator
16. CAA Inspector and Field Representative
17. Air Force Engineering Officer
18. Instructor in Technical Schools
19. Sales Representatives for Aircraft and Related Parts
20. Personal mechanic for executive type aircraft

AIR TRANSPORTATION

AIRLINE OPTION

1. Telephone Sales Agent leading to position in Traffic & Sales
2. Sales Representative
3. Ticket Agent
4. Ramp Agent leading to positions in Operations
5. Station Agent
6. Station Manager
7. Junior Accountant leading to positions in the Treasury Department
8. Administrative Assistant or Junior Clerk leading to administrative positions in each of the Departments:

8a. Economic Control & Planning
8b. Governmental Affairs
8c. Industrial Relations
8d. Public Relations

9. Instructor

AIRPORT OPTION

10. Operations Clerk with City Airport or Port Authority
11. Fixed Base Operator
12. Plans and Research work with State Commissions or Airport division of CAA
13. Assistant Airport Manager

METEOROLOGY

14. Airline Forecaster
15. Airline Dispatch Clerk leading to Dispatcher or Flight Supt.
16. U. S. Weather Bureau
    a. Meteorologist (P-1)
    b. Briefer Observer (P-1)
17. Aircraft Dispatcher
18. Foreign Weather Service
19. Assistant Controller Airways Traffic Control Center, CAA
20. Industrial Forecaster

AERONAUTICAL ENGINEERING

EXPERIMENTAL—RESEARCH ENGINEERS

1. Analytic aerodynamist
2. Wind-tunnel engineer
3. Materials development engineer
4. Structural—development engineer
5. Structural—testing engineer
6. Experimental stress analyst
7. Experimental guided missiles engineer

DESIGN ENGINEERS

8. Chief Design Engineer
9. Aerodynamics design engineer
10. Stress analysis engineer
11. Structures engineer
12. Control mechanisms engineer
13. Estimated performance engineer
14. Weights and specifications engineer
15. Project engineers
16. Propeller design engineer
17. Helicopter rotor design engineer

PRODUCTION ENGINEERS

18. Chief and Production group engineers

MODIFICATION ENGINEERS

19. Modification design engineers

AIR LINES ENGINEERS

20. General performance and estimation engineers

PARKS COLLEGE OF ST. LOUIS UNIVERSITY
3021 Cahokia Road, East St. Louis, Illinois

I am interested in:

☐ Air Transportation ☐ Aeronautical Engineering
☐ Aircraft Maintenance Engineering
☐ Please send me information regarding educational benefits available by Veterans Administration.

Name..... Age.....

Address..... Zone.....

City..... State.....

AIR TRAILS

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THE READERS WRITE:

A Crew Chief Reports . . . In regard to your explanation for the lack of P-47s in the National Air Races, I would like to add what I believe is another reason. The P-47 has often been played up as a fast 400-plus fighter, but in reality it was not a fast fighter, being an easy 100 mph slower than the P-51. I spent three or four years as crew chief on both these types, and although the P-47D was a first-rate ground-support plane, it was no match in speed or range to the P-51 or the P-38.

Incidentally, the F-82 is *not* a jet, but is powered either by two Allison V-1710s or two Packard-built Rolls-Royce Merlins.

Merle C. Olmstead, Chicago, Ill.

• Sorry, that was a typographical error. We were referring to the F-89.

Cost of Link Instructor Training . . . The article "Link Trainer Instructor" in the November issue was a fair yarn, but on page 76 when the author asks the question, "How do you become a Link instructor?" and then answers the question, the way he gives is certainly the most difficult possible. The best way is to spend five months in the Link Trainer Instructor course at Spartan School, spending $500 plus room and board. The way given in the article would cost about $1,900 for a Commercial license, $400 more for an Instrument Rating, and heaven knows how much for flying time.

Glenn O. Hopkins, Spartan School of Aeronautics

Britain Likes . . . We liked your drawings and article on the Curtiss Jenny—keep it up.

R. C. Browne, Model Aeronautical Society, Luton, England

S.O.S. from Denmark . . . The motor I have is a Danish Ceros glow, but it is not a good motor. There are no ballbearings or piston rings and it turns only 5,000 to 7,000 rpm's and the weight is 8 oz.

I would like to have a motor from America, but I can't get dollars here. Please will you send me a motor? I will be very glad if you will. If you will send me a motor I would like that it should be a Cobra 45, Contestor 60, Ohlsson 23, Fox 35, Hornet 60, McCoy 29, Ohlsson 23, 33, 60, Super Cyclone 60 or Torpedo Special.

Preben Petersen, Nykobing F., Denmark

• Wish we could help you, Preben, but afraid the Marshall Plan hasn't included model motors on its list.

Can Helicopter Lift Auto? . . . Is it possible for a helicopter of any make or type (one that *has* been built) to pick up an automobile and transport it in flight?

Can a helicopter pick up loads of 3,500 to 4,000 lbs., then reach an altitude of over 1,000 ft. and transport the load for a fairly good distance?

Bernard E. Huss, Tiffin, Ohio

• We doubt that any present production helicopter can lift more than 2,500 pounds of weight exclusive of its own weight and that of crew and fuel.

Your second question is not clear. If you mean that the 3,500 lbs. of weight is to remain suspended under the helicopter during the trip, this would not be practical as the drag of the object would be very high, thus considerably slowing the machine. A similar idea was used by Howard Hughes when he developed his very large Hercules helicopter for transporting trucks, artillery and light tanks, for short hauls only. Unfortunately, the helicopter crashed, and we do not know whether the idea was abandoned by Mr. Hughes.

No Kitting . . . Why not sell kits of materials with your plans, strip and sheet balsa, plywood and wire.

Jan Berkhout, Brooklyn, N. Y.

• AT is not in the kit or supply business. AT plans are a supplement to the kits now available.

Control-line Flutter . . . As my knowledge of aerodynamics is slight, perhaps you can help me with a problem. On several of my original control-line models, there has been a tendency to flutter—not elevator flutter but an up-and-down fluctuation of the entire tail assembly. This is more noticeable at higher speeds, as in a dive.

K. C. Priest, c/o Bastrop National Bank, Bastrop, La.

• Your trouble can come from one of two sources: a loose control system, that is, too much play in pushrod mechanism, or your framework structure is too tight. In the latter case, shift to heavier wood sizes for stronger parts.

Calling Bill Barnes! . . . Air trails is tops with me. Is this the same mag that at one time ran the Bill Barnes Stories?

Jack B. Reed, Western Colorado Auto Racing Association, Grand Junction, Colo.

• You're absolutely right, Jack! See reproduction of cover below, dated October, 1935.

How Fast is B-36? . . . My friend and I had an argument on how fast does a B-36 fly. Would you straighten us out?

Bobby Tucker, Shreveport, La.

• It is claimed that the speed of the B-36 equipped with jet pods is 435 mph at 40,000 ft.

Flying Saucer Facts? . . . Firstly, just an appreciation of the fine job you do with Air Trails. I find it makes good reading, especially the model section.

What's the go on the flying saucers? Over here our Sunday papers are putting on a big story about these mysterious projectiles. According to the accounts given it would appear that several responsible people swear to have seen them, including the USAF. Personally I won't be convinced until they find one. How about an article in Air Trails giving *facts* only.

Brian T. Faulkner, Cheadle, Cheshire, England

(Continued on page 9)

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CITY AGE
ZONE STATE
HIGH SCHOOL ATTENDED
Check one: ☐ Veteran ☐ Non-Veteran GRADUATED: YES ☐ NO ☐
AT-2

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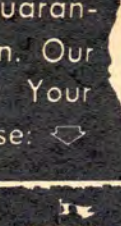

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K & B Torpedo .049	(AA)	5.95
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Ohlsson 19 Glo Kit	(A)	8.95
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Ohlsson 23 RV Deluxe	(B)	10.95
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Ohlsson 33 Glo	(C)	12.95
Ohlsson 33 Glo Kit	(C)	11.95
Ohlsson 29 Marine	(B)	14.95
Ohlsson 60 Glo	(D)	12.95
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O.K. Cub .099	(A)	5.95
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O.K Cub .049	(AA)	4.95
O.K. Cub .074	(AA)	5.95
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O K. Super 60 Glo	(D)	9.95
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Triumph 49 Glo	(C)	15.95
Triumph 61 Glo	(C)	15.95
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Piper Cub 22" AA	1.95
Piper Cub Comet 35" A-B	2.98
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PT Trainer 28" A-B	1.99
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SE 5 32" B-C-D	5.95
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Sky Box Stunt 42" B-C-D	3.95
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Sophomore 29 39" B	3.98
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SPECIAL SOUVENIR BARGAIN

Our last Souvenir Item (JZ) all sold out. Here's even a better bargain.

The manufacturer of a well-known engine, after selling 20,000 at $9.95, has decided to go out of production. We have his remainder of 1,000 complete sets of finished and unfinished castings and parts: Cylinder, piston, piston pin, connecting rod, needle valve, gas line, timer, crankshaft, crankcase, cam, etc., including screws, gaskets, nuts, etc.

You get a complete set, except spark plug and tank. An interesting souvenir of a model engine in the raw for your den or desk.

No. J9 ..... $1.00 per Complete Set

A.H.C. INSTALLMENT PLAN

Buy your model engines, planes and supplies and pay for them over a six months period. Send 25c for complete details and application blank.

BURIED IN THIS AD are most of the new items. Sometimes there isn't time or space to include them. But, if available, we have it.

Trixter Babe 20" AA		1.25
Trixter Invert Jr. 40" A-B		3.95
Trixter Profile 32" A-B		2.50
Trixter Profile 38" B-C		3.50
Trixter Twin Profile 47" B-C		5.00
Tuckette 38" C-D		5.95
Tuffy 24" AA-A		1.58
Waco 33" B-C		4.95
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Wee Willie 18" AA-A		1.95
Whirlaway 11" AB		3.95
Whirlwind Sr. 36" B-C-D		7.95
Wildfire 23" B-C-D		1.95
Wing Ding 18" AA-A-B		2.00
Wing Dingus 18" AA		2.00
Yank 23" AA		1.50

ACCESSORIES

FUELS (Continental U.S.A. Only)

For Ignition	Pts	Qts
Ohlsson #1, #3	.75	1.49
Power Mist #6	.65	—
Reg. Pink	—	1.25
For Glo		
Ohlsson #2, #4	.75	1.40
Ohlsson AA	.75	—
Ohlsson #2 or #4 Econ.	.59	—
Powermist Glo	.90	—
Powermist Spitfire		1.55
Ranger Glo	.80	—
Red Devil	.60	1.10
Testors 39	.75	—
Dynaglo	.75	—
Ranger AA	.80	—
Spitfire AA	.80	—
Blue Blazer #1	.65	—
Blue Blazer #2	.75	—
O/K Cub	.75	—
For Diesel		
Drone	—	1.00
Ranger (Pinted Head)	1.00	—
Ranger (variable head)	.85	—

Pouring Spout For pint cans.... .10
Hot Fuel Proofer .....25, .35 & .45

PROPELLERS

Rite Pitch Stunt 8, 9, 10, 11, 12, 13, 14 in., 6 and 8 pitch..... .35
Rite Pitch 8, 9, 10, 11, 12, 13, 14 in., 6, 8, 10 or 12 pitch ..... .35
Scamper Plastic 5½" 3p, .25; 9" 6p .45; 10" 10p, 11" 8p .65
Super Spl. 8", 9", 10", 11" in 6 & 8" p. ..... .25

Veco 6" 3p, 4p, 7" 4p, 5p, 8" 5p, 6p, 9" 6p, 10"(5"—3"; 7" & 8"—3½"; 9" & 10"—3½")
Also Ohlsson, Flo-Torque, Garday

RUNNING & TEST BLOCKS

E-Z Running Stand 1.25
Universal Running Blocks 1.50
Wright Test Block (fgn.) 4.95
Wright Test Block (Glo) 2.50

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Dale Stunt Tanks—All Sizes ... .85

#1—1½x1½x⅝ #4—⅝x1¼x⅝
#2—2¼x1½x⅝ #6—1½x1½x1
#3—2½x1½x1 #12—¾x1x¾
#15—2½x1½x¾

Fromm: 1¼x1½ or 2 hor. or ver. .50
1¼x1¾x2 Sq. .80
1¾x 1½x2¾ Wedge .... .60
1¾x1x2¾ ½-Rnd Stunt .80

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A & H—1.00; C & D 1.50
DeLuxe 3/16" shaft—1.25; 1/4" shaft—1.50; 5/16.. 3/8" sh. 1.75

IGNITION COILS

Aero Featherweight	2.50	Aero Qual...3.00	Regular 1.50
Arden ..2.60	Rogers	2.00	
O.K. 1.50	Wilco	1.95	
O.K. Twin ..3.50	Winston	2.00	

Smith; Competitor — 1.95, Firecracker 2.75—Dual 4.50

CONDENSERS

Regular —.20 ... Smith Metal .35

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Arden Glo (V2 or V3) ....55 & .85
Arden AA ..... .49
Champion Glo V, V2, V3 ..... .75
Champion V, V2, V3, VB1, VB2 .50
Infant Glo-plug ....(spl).... .65
McCoy Hot Point ..... .65
Ohlsson Glo (V, V2 or AA) .... .65
O.K. Glo-plug (V2 or V3) ..... .49
Plug washers ..... .05

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Alligator clips ..... .10
Arden Booster Jack 1.25
Austin Booster Plug-in ..... .30
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Ohlsson Snap-Pack ..... .35
Arden Battery Cord Kit ..... .25

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2" 1.20
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Sponge Rubber, Dural hub (pr) ⅝"—.25c, 1 1/16"-.29c, 1¼"-.35, 1⅜"—.50c, 2¼" ..... .65
Sponge Rubber, Wood Hub (pr) 2"—.69c, 2½"—.89c, 3½" .... .60
Tail Wheels ⅞"; 1⅛"; ..... .15
Trexler Pneu. (pr) 1¼" or 1½" .40
1¾", 2"—.50c; 2¼", 2½"—.60c; 2¾" 1.00
3"—1.25; 3½"—1.50; 4½"... 1.75

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Austin metal 1.50
D-E Shut Off Valve 1.00
Elmic (gas. or glo) 1.25
Hillcrest plastic 1.25
Stutter-off Valve ..... .75

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Shut-off Valve (state engine) .. .65
E-Z Minimount ..... .85
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Presto Starter (state engine) ... .25
Props (state engine) ..... .25
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.....70g. .50
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Fuel Line Filter ..... .25
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Metal Pump Can .....75¢ & 1.50
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Plug Wrench, 3-way—15c; 4-way .25
Plywood (6"x12") 1/32" .... .20
1/16"—25c; 1/8"—30c; 1/4" .. .35
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Socket Plug Wrench, 4-way .... .60
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● PLUS: Correct size finished propeller ● 3-way plug wrench ● Presto Engine starter with handle and cord ● Speed indicator tables ● Log Book ● Motor cover ● Spark or glo plug with gasket ● Complete engine instructions ● 24 page Gas Engine Theory Manual ● Engine adjustment chart ● Metal fuel tank and gas line ● Metal Battery box ● Wilco Quality Coil ● 12" Hi-tension lead wire and end clips ● 18" insulated ignition wire ● Ignition slide switch ● Coil holder and mount ● Everlast condenser ● SAE # 70 Oil ● 4 ignition wiring lugs ● Spark plug guage set ● 2 plane identification tags ● 72 Insignias ● 72 page book on Control-liners, How to build and fly them ● Cement ● Sandpaper ● "Pro" all-metal knife and blade ● Metal bellcrank with bolt, nut and washer ● Elevator horn ● Elevator hinges ● Lead-in wire ● Push-rod wire ● U-Control handle ● 100 feet U-Control stainless steel wire and reel ● Membership in Modelcrafters of America ● 64 page giant 2-color catalog ● Postage ● Packing ● Insurance.

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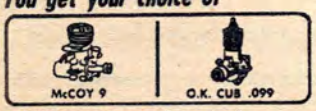

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Bore	.660	.812	.880	1.000
Stroke	.562	.562	.582	.777
Horsepower	1/7	1/6	1/5	1/4

	19	29	35	60
R.P.M.	7,500	8,000	8,500	9,000
Prop	8"	10"	11"	12"
Weight	4	4½	4½	9

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$1.50: Executive 40"
$1.75: Flying Cloud 44"
$.50: (26" to 30") Buccaneer Jr., Muskateer Jr., Chieftain Jr., Brigadier Jr., Powerhouse Jr., Flying Cloud Jr.

CLEVELAND

$1.00: (30") Aeronca Chief, Piper Cub, Luscombe Sedan

$1.25: (30") Douglas DC3, Beechcraft Bonanza, Ercoupe, Globe Swift, Luscombe, Silvaire, Minnow, Ryan Navion, Stinson Voyager

$1.50: (30") Bell Aircobra, Curtis P40, Gruman Panther, Shooting Star P80

¾" Scale: 25" Beechcraft Bonanza 1.50, 23" Curtis PGE 3.00, 21" Fokker D7 1.75, 17" Gee-Bee 1.75, 23" Mr. Mulligan 2.75, 28" Republic Seebee 2.25, 25" Ryan Navion 1.75, 29" Shooting Star 2.75, 19" Spad XIII 1.75

50c EZ MODELS (16" to 20")

Aeronca Sedan, Beechcraft Bonanza, British WW1 SE-5, Cessna, Fokker D-7, Great Lakes Trainer, Midget Mustang, Ryan Navion, Thunderjet

ALSO 36" Black Widow 2.25, 32" Lancer 2.25, P38 Lightning 2.25, 24" Mustang 1.50, 24" Sabre Jet 1.50, Flying Saucer 39c

CARTERCRAFT $1.00: 11" Fokker Triplane, 14" Sopworth Camel, 14" SE5-A

GUILLOW DIE-CUT 25c: Wakefield Jr., SE5, Sportster, Biplane Racer, Stinson Voyager, Cessna 140

COMET STRUCTOSPEED 25c: Curtis Robin, Mustang P51, Monocoupe, Piper Cub, Taylorcraft, Aeronca, Stinson Voyager, Cessna, Fokker D-VIII, Beech Bonanza, Ryan Navion, Globe Swift

Structospeed $1.00: Taylorcraft, Piper Cub, Aeronca, Wildcat

25c: Tiger Shark P40, Globe Swift, Taylorcraft, N.A. Mustang, Helicopter, Navion, Firefly, Cricket, Jupiter, D7 Fokker, Spad, Phantom Fury, Aeronca "K", Stinson SR-7, Bluebird, Aircomet, Piper Cub

50c: Doug Daunt, Sup. Spitfire 1X, Grum. A'ger TBF-1, Corsair F4U-1, Vultee Ven. A-35, Piper Cub, Ercoupe, Dipper, Skyrocket, Stratus, Sparky

$1.00: N.A. Mustang 24", Doug A-26 30", Thunderbolt 24", Wildcat F6F 24", Lightning P-38 34", Clipper, Jr. 36", Pepper 32", Taylorcraft 54", Aeronca 54", Piper Cub 40", Gull 42"

ENTERPRISE 18" 50c: Piper Cub Special, Taylorcraft, Aeronca Champion, Monocoupe

AIRLANE 25c: Cessna 170, Stinson Voyager, Taylorcraft, Piper Cub, Beechcraft Bonanza, Aeronca

JASCO

Jasco Special 1.50, Jasco R.O.G. 35c, Jasco Kid 50c, Jasco Jr. 85c, Jasco Sr. 1.25, Thermalier 1.50, Thermal Cruiser 1.50

SCIENTIFIC (27"-30") 50c: Atlantic Ace, Skipper, Yellowbird, R.O.G. Bullet

25" at 35c: Royal, Major, Bantam, Ranger

ALSO: 50" Miss World's Fair 1.50, 42" Spartan 1.00, 30" Circle King 1.00, 42" Zephyr 1.00, 42" Olympic 1.00, 45" All American 1.00, 36" Flea 1.95, 36" Firefly 1.00, 36" Miss America 1.95

MONOGRAM 75c: Speedybuilts: Cessna Seaplane, P51 Mustang, Spad Pursuit, Republic Thunderbolt, Ryan Navion, Hellcat 6F6, Piper Cub, Aeronca, Monocoupe, Ercoupe, Boeing Kaydet, Midget Mustang

ALSO: 28" Prowler or 31" Pirate 1.25

DISPLAY - BOATS

$1.00: (16") Battleship Missouri, USS Carrier "Shangri-La," USS Destroyer "Hobby"

Gypsy Sloop 15" 1.00; Gypsy Sloop Jr. 11" 50c

MODEL SHIPWAYS: Grand Banks Fisherman 16" 8.00, Baltimore Clipper Schooner 24" 18.00, Diesel Tub 13" 12.00, Fishing Schooner 21" 12.50, U. S. Frigate 20" 11.00, Steam Paddle Cutter 19" 14.00, Virginia Pilot Boat 20" 8.50, Brigantine 22" 14.00, Revenue Cutter 19" 11.50, Merchant Brig 21", 15.00, Extreme Clipper Ship 21" 8.50

DISPLAY - OLD TIMERS

FADOR

1905 White Steamer 2.95, 1905 EMF Racer 2.50, 1908 Baker Electric 2.50, 1909 EMF 2.95, 1909 Hup 2.50, 1904 Cadillac 1.95, 1905 Reo 2.50

MOD-AC

Brougham 1.95, Victoria 2.35, Hanson Cub 1.50, Horse and Harness 1.50, Surrey 1.75, Horseless Carriage 1.50.

HUDSON

1903 Rambler 2.50, 1911 Maxwell 2.50, 1904 Olds 1.95, 1910 Int'l Harvester 2.95, 1911 Buick 2.50, 1903 Cadillac 2.50, 1914 Stutz Bearcat 3.95, 1903 A Ford 2.50, 1909 Stanley 2.95, 1910 T Ford 2.50, 1900 Packard 2.50

ALSO: Station Wagon 9" 1.25, Weasel 11" 2.95, Buckboard 1.25, Stage Coach 1.75, Covered Wagon 1.75, Army Truck 1.00, Wright Biplane 1.00, Chris-Craft Cruiser 1.95,

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GLIDERS: Sindbad Jr. 50c, Sindbad Sailor 50" 1.50, Super Sindbad 2.50, Imperial 72" 1.00, Condor 60" 1.25, Baby Condor 36" 50c, Thermic C 80c, Thermic 70 3.50, Thermic 50 1.00, Thermic Trio 35c, Thermic 72 3.50, Thermic 50X 1.00, Thermic 30 50c, Trooper 65c, Floater 2.50, Sailwing 50 1.00, Thermic 20 35c, Thermic 18 20c, Thermic 100 7.50, Thermic B 50c

DISPLAY - AIRPLANE

COMET (8"-9") 25c: Aeronca Sedan, Cessna 170, Piper Cub, Taylorcraft, Luscombe Sky Pal, Stinson Voyager

CAVACRAFT 50c: Mustang, SE5, Piper Cub, Ercoupe, Taylorcraft, Navion, Cessna

OLIN PLASTIC (¼" scale): Shooting Star 1.00, Piper Cub 50c, Stinson 50c, Seebee 1.00, Beechcraft Bonanza 75c, Jet Sabre 1.00, Ercoupe 50c, Ryan Navion 75c

STROMBECKER 59c: Piper Cub Super Cruise, Piper Cub Super Sea Scout, Swift Land, Swift Sea
69c: P80, Shooting Star, Beechcraft Bonanza, Douglas Skyrocket, Douglas DC3 Flagship
79c: Convair Flagship
1.19: Northrop P61, Douglas DC6 Flagship
1,89: Liberator
3.00: Super Fortress B29

DYNA-MODEL: F6F, P51, F8F, F4U, P40, F.W. 2.75, P38 3.50, P47 2.95

HAWK PLASTIC: F84 Constellation, S6B 1.00, Gee Bee, Curtis, Ike, Laird 50c
Gruman Panther 1.50, Mr. Mulligan 1.00

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(*Continued from page 4*)

• The facts on flying saucers: none. Chance of their existing: better than average.

Small Speed Jobs . . . I admire your magazine and think the AA articles are swell. You have covered everything but speed. How about having a speed job for a Cub .049 or Torpedo .049? I think this would go over big.

Jack King, Leicester, N. Y.

• See "Mini-Speedster" in our January 1951 issue, Jack.

YF-86D or F-95? . . . On the November cover there was a picture of a plane you listed as the YF-86D. In other books I have seen a plane similar to the YF-86D called the F-95. Could you straighten me out and tell me which is which?

Seth Russell Anthony, Jr., Portsmouth, R. I.

• The correct designation is F-86D for production model, YF-86D for prototype. F-95A is incorrect.

One Man's Facts . . . Here are the facts: 1. Half-A engines are wonderful—they've given free flight a "shot in the arm." 2. Half-A engines are no %!.?¼&#! good for control-line planes. 3. For the last six months you have printed almost nothing but plans for Half-A engines. 4. For $2 you have a choice of scads and oodles of Half-A prefab kits. 5. For $6 you are lucky to get a decent kit for a larger motor. 6. Larger motors are rumored to exist (I have four specimens of the species, .29-.60). 7. Perhaps you might *consider* printing a plan for the monster powerplants. 8. Until recently I always bought your magazine first and looked afterwards, now I look first.

M. S. Wolf, Brookline, Mass.

Messershmitt Me. 262A . . . Could you tell me where I may obtain a model of the Messershmitt Me. 262A? What was the span of this plane? I am just beginning building model planes and have learned a lot from your mag. I like best "Air Progress."

Gene Gittman, North Bend, Nebr.

• The span of the Me. 262-A was 41 ft. We know of no kit model of this ship. Several good sources for plans of all types of scale plans of both new and old models are Aircraft Plan Co., P.O. Box 215, Franklin Square, N. Y., and Polk's Model Craft Hobbies, 314 Fifth Ave., New York 1, N. Y.

Full Size, Full Value . . . I think it's swell the way you offer full-size plans for us model builders. I still don't see how you can sell the plans so cheap. It seems like you would be losing money on the deal.

Norman Galloway, Oakland, Calif.

Designs on the Goodyear . . . I have just received the latest edition of Air Trails in which you published a letter of mine. That is what I like about American magazines, you will give anyone a hearing.

Confidentially, I am designing a 'plane to the Goodyear midget racing specifications. If it was built, I guess it would be the first aircraft of this class built in Europe.

R. Prizeman, Chalfont St. Giles, Buckinghamshire, England

Coast Guard Reporting . . . I have been a reader of your magazine since I was old enough to look at pictures, and may I state that to me and doubtlessly millions of other model builders it's the most interesting and complete of all magazines in its class.

I've been building models for quite a number of years, but as yet have not entered any contests. Being in the Coast Guard, I am frequently on the move and therefore find it hard to count on being an entrant. My enlistment will soon be up and once more I'll be a civilian sufferer from dope, thinner, methanel, nitro-propane and cement fumes (and how I love it). Also I am not a member of the A.M.A. I would appreciate it very much if you would inform me how to become a member.

M. M. Bertulis, ET/3, U.S.C.G.L.T.S., Box 2, Hawi, Hawaii

• By all means contact the Academy of Model Aeronautics, 1025 Connecticut Ave., N.W., Washington 6, D. C.

Guys from Other Planets . . . First, I would like to compliment you on the fine job you are doing for the average modeler with your magazine.

I find that your full-size plan sets, fine as they may be, do not go over as well as they could. In one set, such as your #1050, there is a Class AA free flight, a Class B novelty control-liner, a free flight-control line combination, and a trainer. Not every modeler has such a wide range of interest. If such plans could be printed in their respective groups, such as one plan of four speed control-liners, one of AA free flights etc., it would save the modeler a lot of wear and tear deciding whether or not to get the plan. And such an idea has certain conveniences, like having one big package of all the same goods.

Also, in the long winter months when no one can fly and everyone is tired of building, why not a once-a-month rubber-powered novelty, like a small helicopter, that could be flown in the school gym or the like?

I think it would go over.

Maybe I'm crazy, being a free flighter, as people treat me like a person from another planet. But even so, if this "trend" that everyone talks about keeps going, I'll be able to sit back in my old age and gloat about the time I was nearly run out of town for making a free flight.

That's all for now.

George E. Bullwinkle, Mt. Prospect, Ill.

• George, we can remember when U-controllers were treated as people from other planets. Remember the cry of "Yo-Yo!"?

Model Dealers' Handbook . . . I would like to know where I would be able to buy "Model Dealers' Handbook." What is the price of this book?

I am anxious to obtain one.

Duane P. Barnett, Kittanning, Pa.

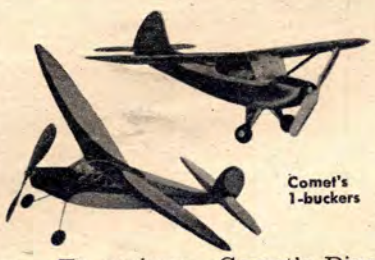
• This book, entitled "Hobby Shop . . . for Fun or Fortune," is sold by the Model Industry Ass'n., 1265 Broadway, New York, N. Y. The price is $2.

Showcase

Contact your hobby shop for items shown here. Both the price and the specifications are subject to change.

That Christmas gift section of ours caused considerable comment, all good. Hope you found it helpful for your holiday shopping. Inadvertently we labeled Bill Atwood's Wasp a "49" instead of an "049." Several readers said they'd be glad to buy a new .49 Atwood at the Wasp's price of $5.75. Sorry, gang. One other point we wanted to straighten out was the Comet rubber-powered job that ran in the gift section. We went and raised three Comet models from 50¢ to $1. 'Tain't so. To review: Comet's Dipper, Sparky and Stratus are 50¢ rubber kits (L-9, L-12 and L-11, respectively). The two jobs we illustrate here are from Comet's "M" series (top), the Struct-O-Speed "E-Z Built" prefab flying models, and the "P" line of flying and flying scale models—all $1. . . Our contention is that the better your tools, the better your work. The next time a windfall comes your way we suggest you consider the X-acto "Forty-Niner," a complete set of X-acto hobby knives and tools in a portable wooden chest. It contains every knife, tool and blade in the X-acto line. $25. . . . That slick bipe there is by Berkeley Models (now at new home at West Hempstead, L.I., N.Y.). We'll downrate you as a spotter if you can't recall it's the famous Pitts Special flown by Betty Skelton to many aerobatic championships. Wingspan of the model is 25.5 inches. Affectionately called "Little Stinker" by Betty, the Berkeley model has all the detailed insignia in decal form sported by the prototype. Features are formed metal engine cowl and oil drip pan, metal wheel pants, keel-crutch fuselage assembly, die-cut balsa parts. Rubber wheels have metal hubs. Metal hardware is complete. Wing leading and trailing edges are shaped. Takes engines from .19 to .33 cu. in.; priced at $4.95. . . . Something long needed in the model boat field is the "Notebook for Ship Model Builders" recently published by Model Shipways (Fort Lee, NJ). It is designed for use with construction kits featuring machine-carved hulls and for those who wish to improve their modeling techniques. The beginner will find valuable hints on tools, materials and methods, the gleanings of many years of experience in guiding model makers, making fine models. $1.

(*Continued on page* 12)



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Showcase

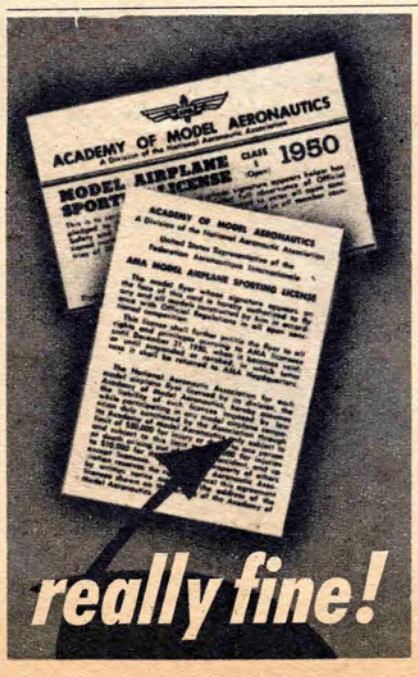
Try your favorite hobby shop for items presented here. Write the manufacturer if you can't find it.

For small-bore engines H. & P. Plastic Products Co. (Grafton, Ohio) offers the Scamper 5.5/3 (that's 5.5 inches in diameter, 3 inch pitch) for 25¢ apiece. This plastic airscrew is static balance tested; offers low impact resistance and high tensile strength. Other Scamper props are the 9/6 (40¢), the 10/10 (65¢) and the 11/8 (65¢). A ¼" brass sleeve is available for the 9/6 for 5¢ . . . . Midwest's latest free flight is the much-heralded Fu-Bar 36 which can be recognized by its down-turned stab tips and upswept wing tips. Kit sells for $1.75, has formed landing gear, die-cut firewall, die-cut body pieces and ribs, tapered trailing edges . . . . That ole reliable, the S.E.5 of World War I fame has been prefabbed by Master Modelcraft (727 Westchester Ave., New York 55, N.Y.) for two bucks and a half ($2.50). For the Half-A engines; features 1-piece fuselage. Span is 17 inches; wing area, 95 sq. in. . . . WCL Specialties (Edgewood, R. I.) has the "Flip-It" control line sport and stunt model with assembled and glued circle-flow wing in deluxe kit for $3.95. Takes A and B engines. Standard kit (you glue the wing), $3.50 . . . . Have you seen the Constructo prefabbed "Ships of the Seven Seas" kits being sold and distributed by Polk's Hobbies (314 5th Ave., NYC 1)? Really quite different from any previous boat kits. Each costs 75¢ and the line includes a Chinese Junk, Yankee Clipper, Oriental Galley Funee, the Endeavour, Schooner and Brago. All wood parts, 22 to 72 per kit, are finished . . . . Look for big things from Jim Walker in the way of a brand-new control system which he has named "Air-Line Control." Jim reports that "using this control the plane can be flown almost as a free flight model directly overhead, or in a large circle similar to U-control—and the model can be rolled."

Plastic Prop

S.E.-5

Constructo



One of the many fine features of an Academy of Model Aeronautics' model flyer's license is the public liability coverage ($50,000 and $100,000 personal injuries; $10,000 property damage). By subscribing to the safety rules of the AMA, you can obtain the license and liability coverage. All licenses are on a calendar year basis, so the sooner you sign up the more you get for your money.

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On July 1, '50, I was ..... years old (license classification is based on your age on July 1). Please issue license checked:

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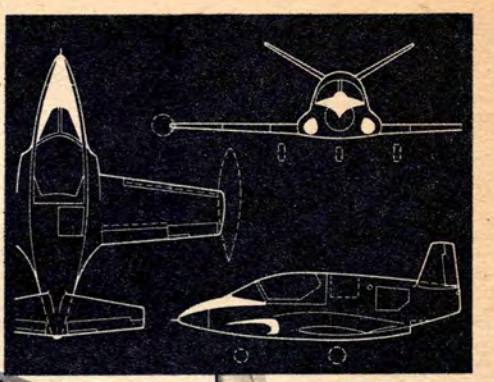
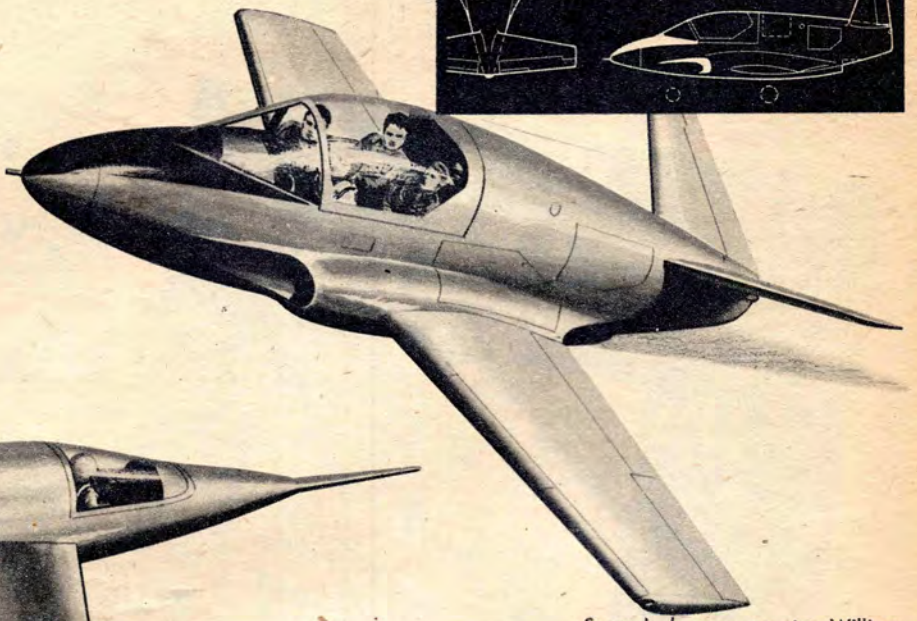
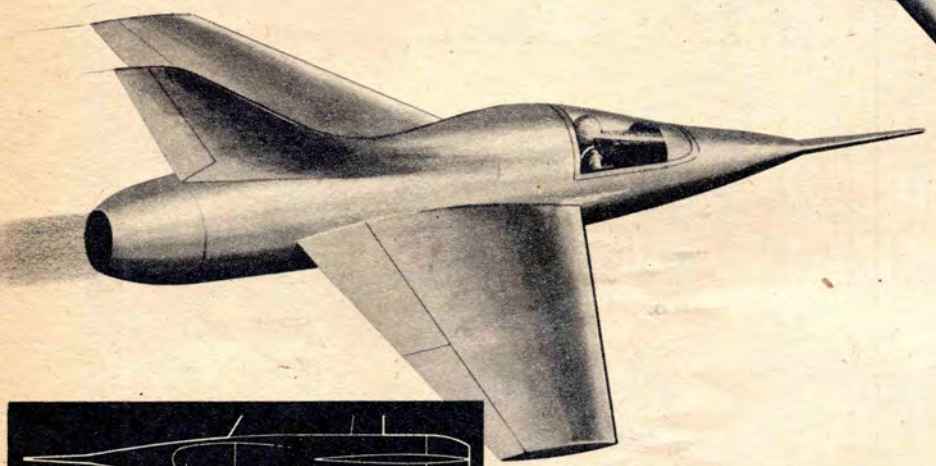
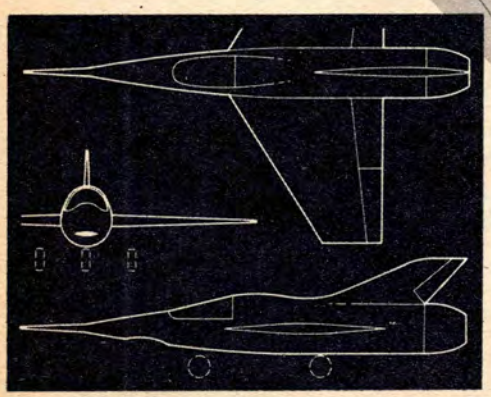


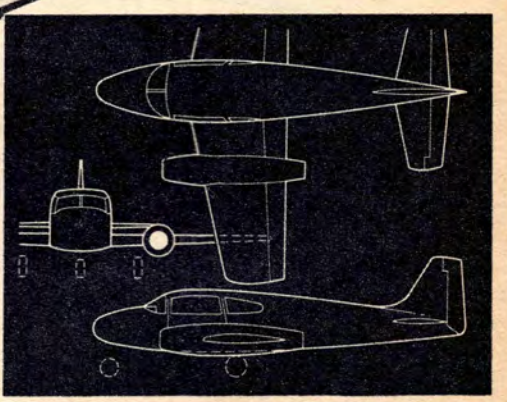
First on the beam this month is Allen W. Hayes of Minneapolis, Minn., with his design for a four-place personal jet plane, featuring tricycle landing gear and "V" tail. One of its most significant features is the excellent speed ratio from 40 to 300 mph due to such devices as leading-edge droop snoot and flaps. Fuselage drag brakes help further to reduce landing speed.





Second honors go to William Peschke of Far Rockaway, N. Y., who developed a turbo-jet powered semi-flying wing aircraft (left), capable of transonic and supersonic speeds. The 34 deg. sweepback wing has a span of 30 ft. and a diamond-shaped airfoil. The rudder is swept back 47 deg. The cylindrical fuselage houses an axial flow jet engine.





A twin-jet personal plane or executive transport by Stan Gourley of Arvada, Colo. This neat design carries four in a pressurized cabin, the air being bled off from engine compressor. Two jets, each developing 550 lbs. of thrust, give plane a cruising speed of 300 mph, service ceiling of over 18,000 ft. Range, 600 mi. Wingspan, 42 ft. The aircraft is equipped with a tricycle landing gear.

Air Trails has opened its columns to those who are interested in presenting plans for "aircraft of the future." Rules governing the competition are as follows: Three-view sketches of the proposed aircraft will be required. These should be not less than 8½ x 11 inches for the entire three-views. Give sketches of the complete airplane in three-quarter front and rear positions. Photos of a model of proposed design may be included. Information on power plant(s), estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and judges. The designs may be of any type: commercial aircraft, military planes (fighters, bombers, troop transports), planes for the private flyer and single-engine sporting or racing craft. The entry each month judged the most practical or of the greatest significance will receive an award of $25. Payments of $5 will go to the runners-up. Entries will not be returned and for that reason those participating should keep copies of all material submitted. Mail entries to Airmen of Vision, c/o Air Trails, 122 E. 42nd, New York. The editors regret that because of large number of entries they cannot enter into correspondence on Airmen of Vision.

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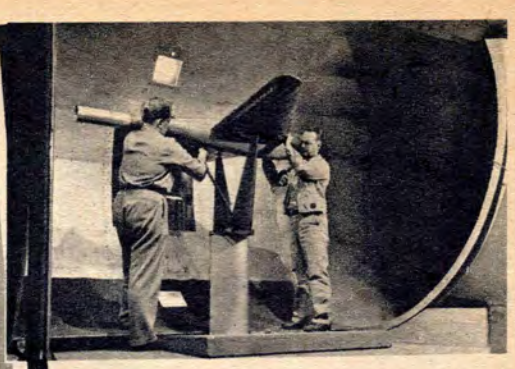


Aeronautical Engineering offers you a wide choice of creative and practical duties. Here two engineers install a guided missile model in the Northrop Aircraft, Inc. wind tunnel to study its aerodynamic characteristics.

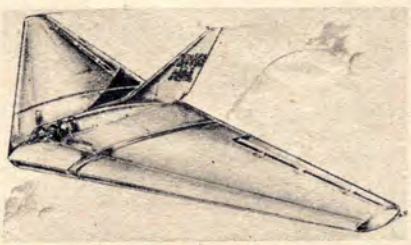
Write your own ticket for earnings and achievement—in *Aeronautical Engineering*. Ride to success on wings of the great *Air Age*. *Aviation* is progressing at "super-sonic" speed. Things to come defy your imagination. Stretching ahead of you can be a lifetime career of fascinating work and rich rewards.

GOOD PAY FROM THE START

Northrop-trained men have drawn top pay brackets for starting jobs in *Aeronautical Engineering*. They have an enviable record for moving up fast, in both earnings and responsibility. Join them—by getting Northrop training—and gain this important advantage in starting YOUR career. Many types of *creative* duties mean there can be a place for you if you possess *imagination* and *originality*. Many *practical* kinds of work mean there can be a place for you if you like *action* and the *use of skill*.

In a huddle on their design for the rudder of a student project aircraft, these Northrop students study their assembly drawings—a scene they will repeat many times during their careers.

Wing-top classroom—an example of how engineering instruction at Northrop comes vividly to life in an actual aviation industry environment.



All-wing glider designed by Northrop engineering students—a typical training project for practical design and production experience.

Career Opportunities and Military Preferences for Northrop Students and Graduates

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air notes

AVIATION TODAY AND TOMORROW

1700 mph by 1960. Ten years from now the airplane will be able to fly two and a half times the speed of sound, according to Douglas Aircraft Co.'s aerodynamic research engineer Harold Luskin and aerodynamicist Harold Klein. Power required to push the airplane through the air at such a speed, Mr. Luskin said, was equivalent to that of more than half a dozen locomotives, and will be provided by turbo-jet engines. Since the power required for flight depends on the amount of drag to be overcome, the airplane will have a pencil-thin fuselage, sharp nose and thin wings.

PAA Birthday Cakes. Big, scrumptious cakes topped with 23 candles were served by stewardesses to Pan American passengers on the longer Clipper flights. The occasion . . . 23rd anniversary of Pan American World Airways. Starting in October 1928 with a 90-mile flight between Key West, Florida, and Havana, Cuba, a two-man crew and a few bags of airmail, the airline today has more than 14,000 employees and serves 75 countries on its routes around the world.

Record Breaker. The huge Air Force cargo plane, the Convair XC-99, flew 200,000 ton miles of cargo on its first mission, shattering 21 unofficial world records for load lifting. On one flight, between San Diego, Calif., and San Antonio, Texas, it hauled approximately 100,000 lbs. of cargo. The load consisted principally of 42 airplane engines.

Jet Flying Boat. The British jet-propelled flying boat fighter SR/A1 is again undergoing test flights after accidents to the first two prototypes had brought the program to a standstill. The SR/A1, the only one of the kind in the world, is a single-place flying boat powered by two Metropolitan Vickers "Beryl" engines each developing 4,000 lbs. thrust.

Ford Airplane Engines. The Ford Motor Co. will build the 3000 hp Pratt & Whitney R-4360 Wasp Major engines. The powerplants will be manufactured in Chicago.

Air Force Bases Named. The Fairfield-Suisun AFB, Fairfield, Calif., has been renamed Travis AFB in honor of Brig. Gen. Robert F. Travis of the USAF. Gen. Travis, an outstanding aviator and model builder, was killed in a crash of a B-29 after take-off at the California base on August 5, 1950. Also, plans are going ahead to name the Spokane AFB, Washington, in honor of Gen. Muir S. Fairchild, the late Air Force Vice Chief of Staff.

Air Briefs. Slick Airways has placed with the Douglas Aircraft Co. an order for three DC-6A Liftmasters, to supplement their fleet of aerial freighters . . . A new Ground Forces rating for Army pilots was recently announced by the Department of Defense. From now on all "Liaison" pilots will be called "Army Aviators." Training and operations will include instrument flight . . . Great Britain has granted the USA permission to set up observation posts on the Turks and Caicos Islands, near the Bahamas, for guided missile experiments.

Helicopters. A substantial order for the Bell H-13D helicopters was placed by the Army Field Forces. Recent experience with the rotary wing craft in the Korean war was responsible for increase in military orders. Scheduled for the fiscal 1951 procurement are approximately 500 helicopters (equivalent to about $75 million.)

Electronic Slip Stick. An electronic analogue computed capable of solving many problems of flight faster than a human brain has been built by Boeing Airplane Co. The instrument has solved in one week a complex problem which ordinarily would require a year's time.

No Visa for Argentina. American air tourists traveling to Argentina do not require a visa any longer. A valid passport is now the only document needed.

Grumman to Florida. Grumman Aircraft Engineering Corp. has leased Stuart Airport in Florida, where some of the testing of company's airplanes will take place.

Omnirange Airways Opened. First airways based on the new Omnidirectional Range, a high-frequency range which sends out course signals in all directions instead of four, were put into operation by the CAA on October 13. Extending through six States, they connect such important traffic terminals as Kansas City, Denver and Albuquerque. Also linked by the new type of facility are Omaha, Wichita, Tulsa, Oklahoma City, El Paso, Fort Worth and other cities en route.

Transatlantic Jets. Largest mass flight of jet fighters ever made across the Atlantic was recently completed by pilots of the 27th Fighter Escort Wing, who ferried 180 Republic F-84E Thunderjets from Bergstrom AFB, Austin, Texas, to Germany. Flight was made in two groups of 89 and 91 planes.

Heli-Jeep. An ultra-simple helicopter, with twenty percent less parts than required in military helicopters now in use, simple but yet rugged like the ubiquitous ground vehicle, with no pedals to push or levers to pull, was announced by Gilbert Magill, president of Rotor Craft Corp. of Glendale, Calif. It will carry five people, and requires no special tools to keep it going. Its purpose will be to leapfrog the terrain that would stall and wreck a surface vehicle.

Long Hop Albatross. Three Grumman SA-16A twin-engine amphibians of Air Rescue Service have flown non-stop from Travis AFB, Calif., to Hickham AFB, Hawaii, a distance of 2,400 miles. This was the longest hop ever made by these craft. They carried fuel in the wing floats in addition to droppable fuel tanks under each wing.

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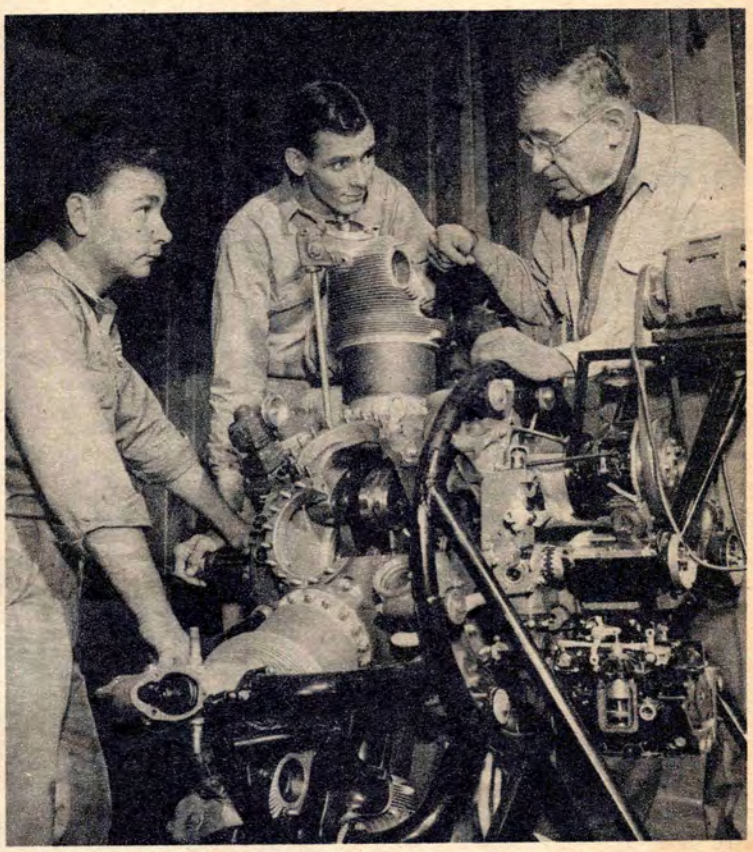

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Bored? Max Conrad, who recently made a successful transatlantic flight from Minneapolis, Minn., to Switzerland and back in his Piper Pacer, worked out a routine to while away the long hours on the over-ocean hop between Labrador, Greenland, Iceland and Scotland. For 15 minutes he pumped gas from fuselage to the wing tanks, then ate Graham crackers for five minutes; navigated for 10 minutes; played his harmonica for another 15 minutes and completed the hour by writing lyrics. In case you did not know, Conrad is not only a pilot but also an accomplished song writer.

Illinois Plan. A special regulation issued by the CAB will allow the University of Illinois to train students to meet "private pilot proficiency" requirements in about 40 percent less time than the legal minimum of 35 hours, with the time saved being used for teaching advanced skills. The curriculum has a total pilot time of 26 hours—plus 11 hours in a School Link and eight hours of flight observer time.

Approved Boom-Tailer. The Anderson-Greenwood boom-tail pusher lightplane has recently been granted Approved Type Certificate 4A1 by the CAA. The rugged all-metal plane has an excellent field of view due to its engine location and is highly stall and spin resistant. Built in Houston, Texas, the AG-14 will be handled through conventional distributor and dealer arrangement. Tentative list price for one of these fully equipped planes is $4,500.

From the Ground Up. Interested in a good ground course? Then get "From the Ground Up," a mighty smart book by Sandy A. F. MacDonald and published by Aviation Service Corp. Ltd., Port Credit, Ontario. It covers elementary air navigation, theory of flight, engines, airframes, instruments, radio, meteorology and airmanship, revised to ICAO standards, and is a gem of valuable information. 108 pages of text, all for $2.50. You will find it an excellent value, whatever your status in the flying game.

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Here Jim Walker shows how to control two planes in close formation. Notice his right arm is drawn back and left arm extended to make leading plane fly a larger circle. Leading plane is flown low, second plane high. Position is maintained by moving arms in and out. When looping, always start rear plane first to avoid collision.

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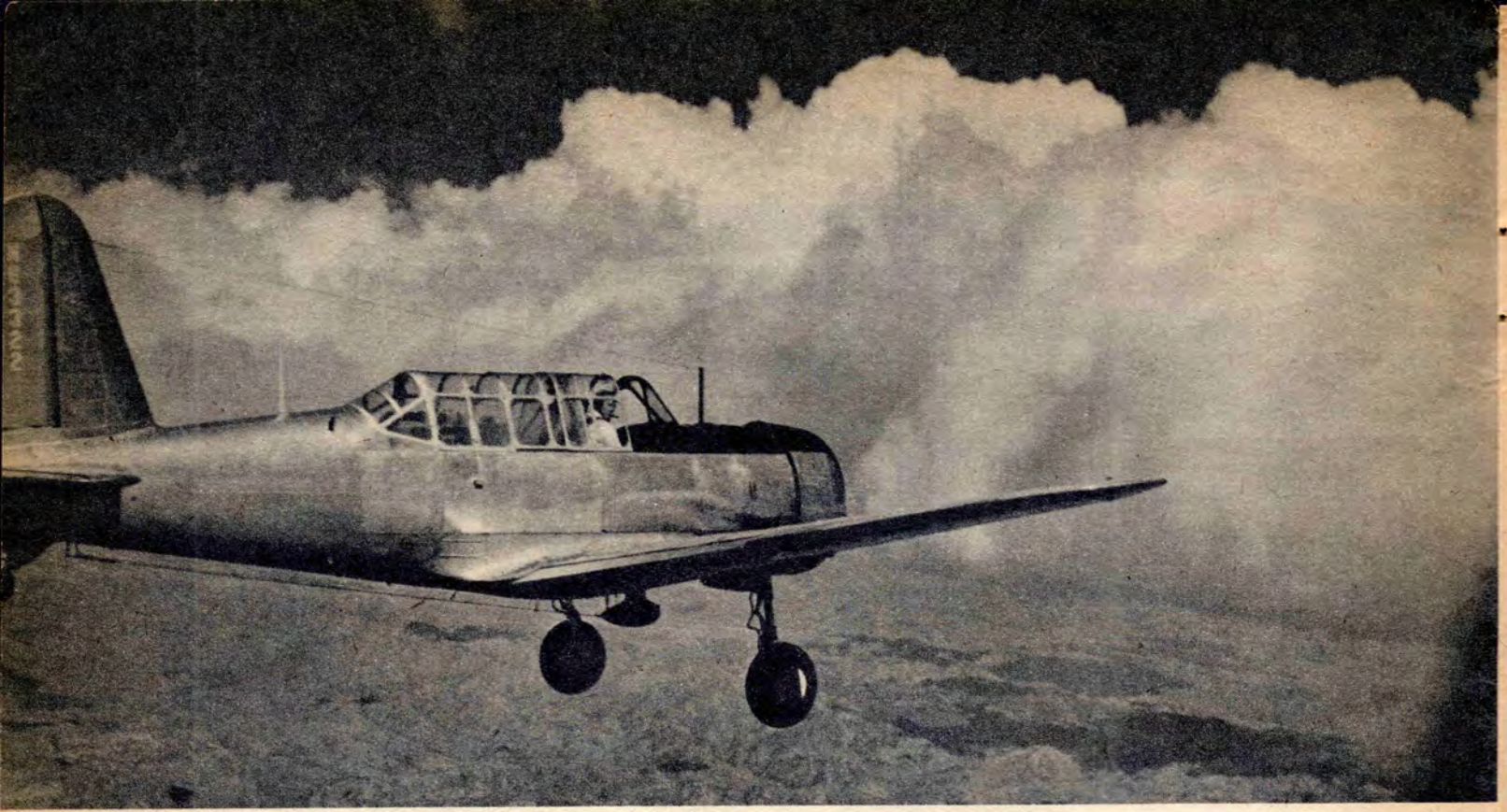
AIR TRAILS
FEB., 1951

Hey, Joe— Give a Look!

Take a good look at this picture, Joe. It is an American bomber plant at midnight and the bombers are the mighty Convair B-36s. Remember, a couple of years ago there was much shouting about this bomber and what it could not do. People said it was full of bugs. Now, with the bugs ironed out and jet engines added, it has become one of the most formidable strategic weapons in the world. Yes, Joe, we do much bickering in this country, but in the end we always come up with the right answer, for such are the ways of democracy. If you do not believe so, ask Adolf's heirs.



RAIN Making Is My Business

From finding gold in them thar hills, the author shifted over to panning the clouds for hidden wealth

By C. S. (CHUCK) BARNES
as told to
JOSEPH STOCKER

■ Even to me, the idea seemed a little fantastic, and to anybody else it probably would have sounded like the obsession of a crackpot. So I hadn't talked about it very much before that cloudy August afternoon in 1937 when I climbed into my Monocoupe at the Fairbanks, Alaska, airport and deposited my curious cargo near the freight hatch.

I was a mining engineer back in those days, with a reserve commission in what was then the Army Air Corps. I was in charge of exploration for a large outfit which made a specialty of dredging for gold in the Alaskan streams. But we were constantly plagued with the problem of too little water, because it takes a good, full stream flow to float a gold dredge into the dredging pond.

Then, one day, I made an intriguing discovery. I noticed that, up in that north country, it always rained a great deal more over glacial areas than over the adjacent lands. I decided this was due to a rapid drop in temperature caused by the glaciers. I thought that if I could simulate this condition artificially, perhaps I could make it rain.

Thus my curious cargo that August afternoon at Fairbanks—a small sack full of shaved ice—nothing more. So I took off and headed north of the city, into a mass of fat, moist cumulus clouds. At 15,000 feet I fed the shaved ice out of the freight hatch.

It rained for four and one-half hours that afternoon in areas which I had seeded with my shaved ice. In neighboring areas where the clouds were left to shift for themselves, it didn't rain a drop.

Well, that's how it all started, although I had no way of foreseeing it at the moment. The company I worked for thought it was so much foolishness, and the experiments went no further. I was ahead of my time. A good many years and a global war were to intervene before I could make my "foolishness" pay off.

But now, today, rainmaking is my business.

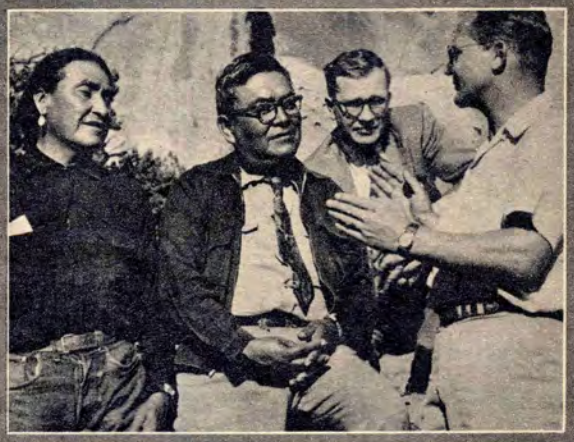
My outfit—the Precipitation Control Co., with headquarters in Phoenix, Ariz.—is one of the few of its kind in the country. We've piled up nearly 7,000 hours of productive aerial rainmaking during the past five years. I've left the mining business and Alaska far behind to hunt for my own kind of gold in the clouds over six

Western states and one foreign country. And, with the help of several fine cloud-busting pilots in my company, I'm hitting some pay dirt.

Currently we have nearly 20 rainmaking projects under way in Arizona, California, New Mexico, Texas, Utah and Montana, along with the Republic of Mexico. Triggering reluctant moisture out of the sky has even cast us in the role of white rain gods to the Navajo Indians. They decided to by-pass their medicine men and signed us up to relieve their parched reservation lands in Arizona and New Mexico. We've had to fly a chalk line on that job, though, because the Hopi Indians' reservation is right in the middle of the Navajo lands. And the Hopis stubbornly prefer to finagle their own rain with ceremonial snake dances.

Besides playing rain gods to the Indians, we're milking the clouds for drought-beset ranchers and farmers in the arid Southwest. We're making rain for irrigation districts and power companies, and for cities facing acute water shortages. And we're doing a peculiar job for a county in California that wanted to save the money it was costing to sweep drifting sand off its highways.

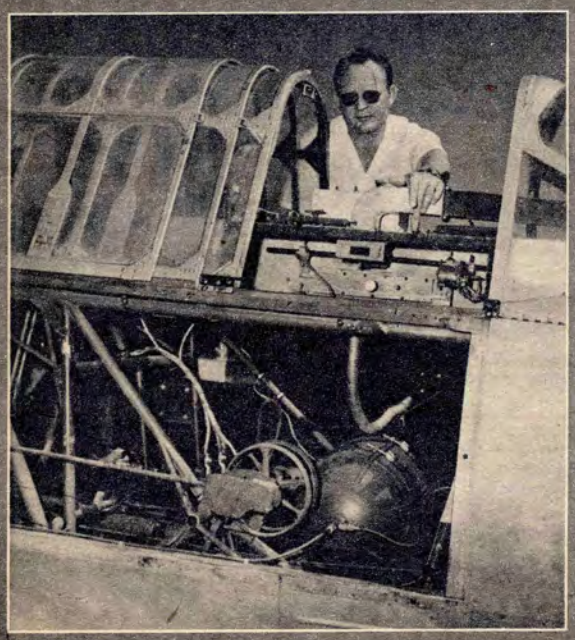
The county in question is Kern County, around Bakersfield. Out in the Lost Hills area, west of Bakersfield, it was so dry that the "blow sand," as the Kern people call it, was clogging up the roads. The county spent more than $15,000 last year to clean it off. We seeded Lost Hills from one of our rainmaking ships, settled the dust with a few (*Continued on page* 74)

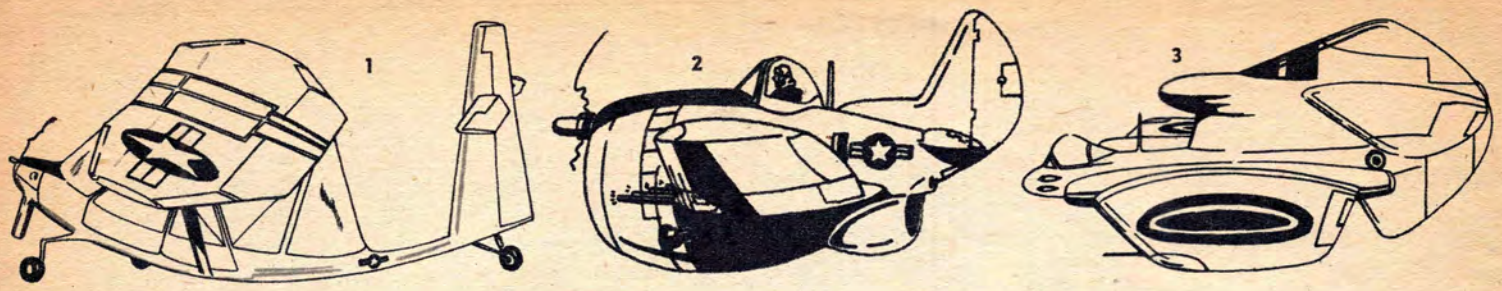


These Navajo Indians have forsaken their rainmaking medicine men and now depend on the "iron bird" to relieve their parched land. Here "Chuck" Barnes, rainmaker, explains things to a couple of Chiefs.

Rear cockpit of a rainmaking BT-13 (below) is full of equipment for spraying silver iodide into the clouds from two short pipes located on the right and left topside of fuselage just beyond cockpit.

Pilot's office (below right) is fitted with complete blind flying instruments including attitude gyro, as well as numerous controls for cloud seeding. Rainmaking pilots fly in weather that grounds airliners.

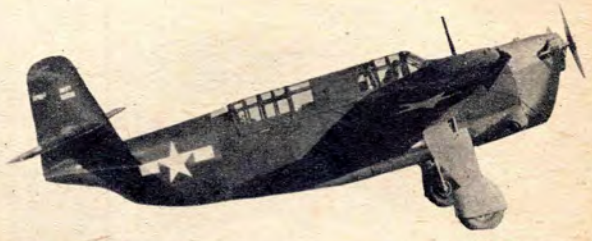




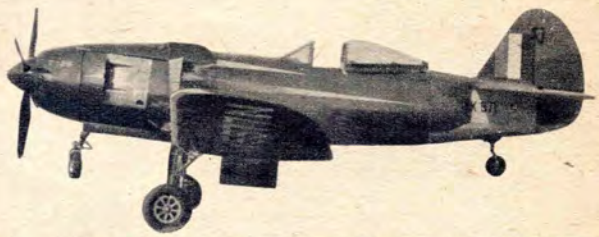
How's Your Air I.Q.?

Nine Chances...

Here we are again with super-secret planes courtesy of Air Trails' super-spy department. This time our operator Z-2 failed to report the country of origin. Planes shown here are a fine representation of an aeronautical cocktail. Bombers, lightplanes, jet, piston-engine fighters and even gliders are thrown into one common barrel, mixed well and poured. Enough to give a designer a good headache, and tax the best recognition expert. Let's see how good you are in unscrambling this puzzle. Don't blame us if your sense of aerodynamics is outraged—we only publish what Z-2 sends us and he's no air expert.



How good are you at puzzles? Here's a little number composed of many things beginning with a lightplane and ending with a jet. Front, Aeronca C-2; middle, Curtiss SB2C; rear, Vought XF6U-1.



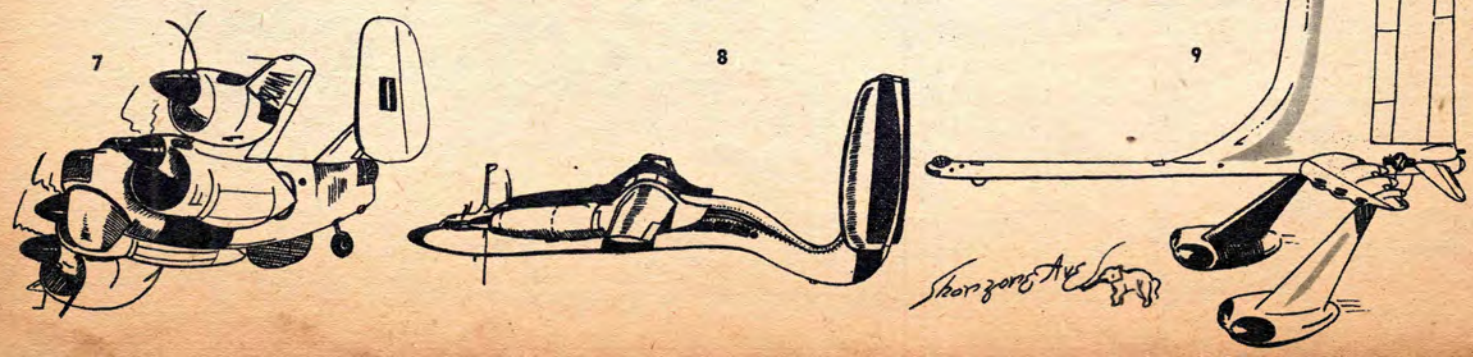
This mighty fighter even sports a small nose wheel just in case the long nose has a tendency to do some ground plowing on landing. Front, Curtiss XF15C; middle, Corsair FG-1; tail section, Curtiss P-40.

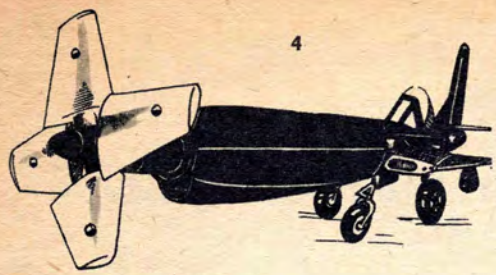
A "Whatizit" which apparently started out as a glider up front, but later the designers had a change in heart. Could use a nose wheel. Front, Gotha glider; middle, Fairchild XBQ-3; rear, Jap Nick II.

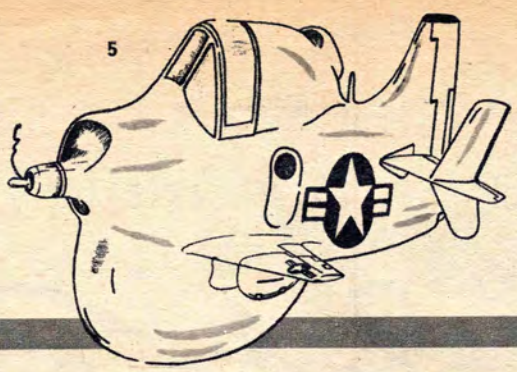
Twelve Guesses...

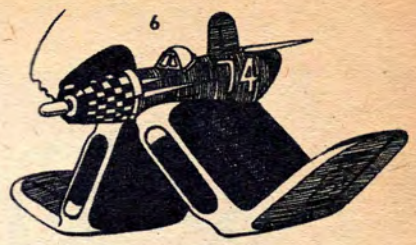
At top and bottom of these pages are some interesting sketches by Shorzoe Ave of American and British aircraft, with salient features emphasized. Identifying these should be easy. If you get 'em all you're a Hi-Spotter; 10-11, not bad; 8-9, *hm-m;* under 8, *ugh.*

1. Convair L-13
2. Republic F-47N
3. Gloster Meteor IV
4. Ryan XF-2R1
5. Douglas AD3W
6. Corsair F2G1
7. Avro Shackleton
8. Airspeed Ambassador
9. Convair B-36
10. De Havilland 108
11. Boeing XF8B1
12. McDonnell F-88





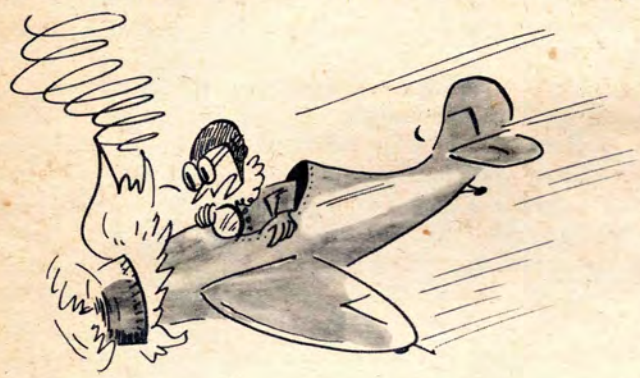




Question:

You're flying without a chute in a plane not equipped with a pressure fire extinguisher. Fire occurs forward of the firewall in the engine compartment. You should . . .

☐ Cut the ignition switch and go into a steep dive.
☐ Bail out.
☐ Shut off the fuel, cut the switch and fly as slowly as possible without stalling.
☐ Shut off the fuel, leave the ignition switch on, go into a nose-high side slip.
☐ Cut the switch and go into a steep forward slip.

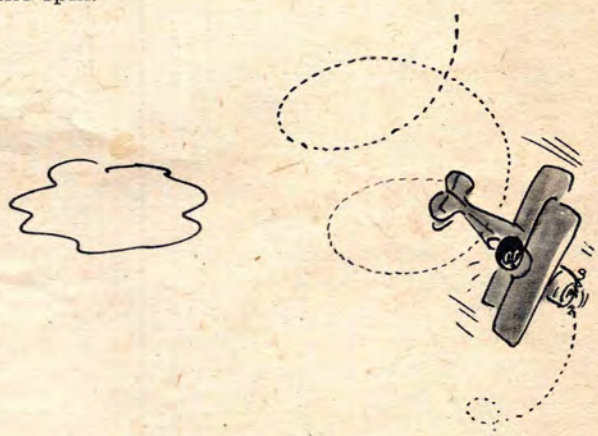


Proper procedure is next to last. Shutting off gas but leaving the switch on will consume the fuel remaining in the carburetor. A nose-high side slip will help to keep the flames away from the occupants and fuel tanks and may even blow the fire out.

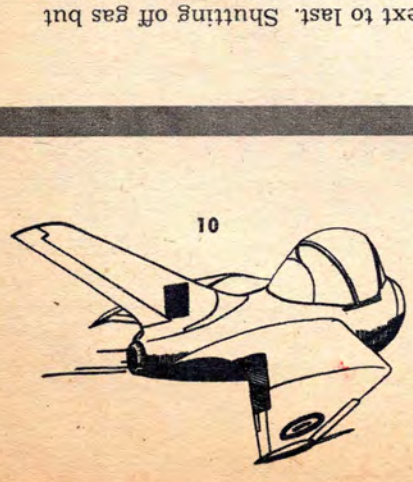
Question:

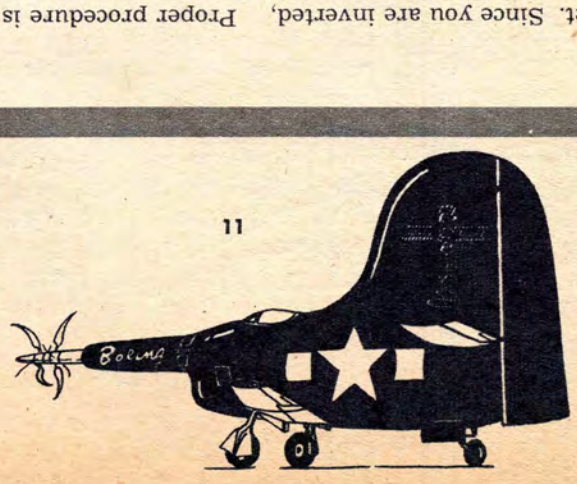
While practicing Immelman turns at 6,000 feet, you have stalled on your back and fallen off into an inverted spin. You should . . .

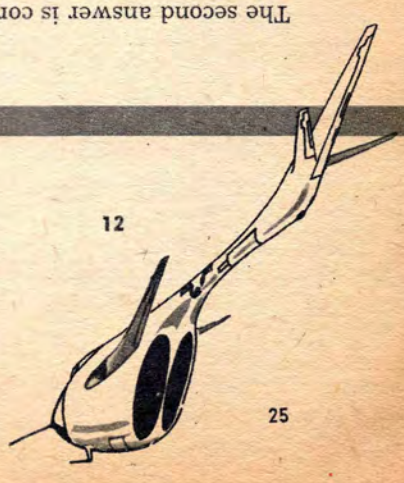
☐ Bail out without hesitation.
☐ Close throttle, bring stick full back, full rudder opposite the direction of spin.
☐ Use the same recovery as for a normal spin.
☐ Full throttle, stick full back and rudder in the direction of spin.
☐ Release the controls. Then use full aileron opposite the spin.



The second answer is correct. Since you are inverted, pulling the stick back has the same effect as shoving it forward in the recovery from a normal spin: getting the nose down and picking up flying speed. Opposite rudder stops the rotation. If the stick is held back after rotation stops, the plane will finish the maneuver with the execution of a half loop. Another recovery from the inverted flight position which is advisable if you are short on altitude is a half roll to the normal flight attitude.







Meet America's Aerobatic Champion

Rod's Red Hot

By JOHN L. MacKENZIE

It takes a top man to win the crown of National Aerobatic Champion, and this young fellow is tops

■ Thirty-three perfectly executed maneuvers in exactly seven minutes won for Rodney F. Jocelyn the title of National Aerobatic Champion at the All American Air Maneuvers in Miami in January of 1950! This feat was by far the biggest upset in competitive aviation, for Rod was strictly a dark horse, a newcomer to the field of exhibition flying when he unseated three-time champion Beverly Howard.

Although he seemingly came from obscurity to win the coveted Gulf Trophy in his first attempt, Jocelyn has since established beyond all doubt the fact that his was no chance performance. His subsequent exhibitions in air shows around the country have proven his championship caliber and demonstrated to the public that here is a man who will not be easily surpassed in precision aerobatics.

If one were to expect to find something unusual about Rodney Jocelyn which might explain his sudden rise to the top, he would seek in vain. There is nothing at all out of the ordinary in his background in aviation or in Rod himself. At 27 he is typical of the war-trained crop of flyers who are now seeking a living in the flying end of the business. He is merely a man who has found in himself a natural talent for flying and is using that talent to the best of his ability. His wartime training and experience as a fighter pilot in the Army Air Forces augmented and developed his aptitude and gave him a firm foundation for the career on which he is now embarked.

A native of Urbana, Illinois, Rodney enlisted in the Air Forces on April 22, 1942, his nineteenth birthday. He was assigned to the Southeastern Training Command and received his primary, basic and advanced at various points in the South. An early yen for aerobatic flying put Rod in the military doghouse and the brass relegated him to twin-engine training in place of the fighter piloting which was his initial goal. As a consequence, he spent 14 months at Tyndall Field, Florida, towing targets and flying Lockheed Hudsons in training operations. Eventually, however, he returned to the single-seaters. When he finally went to England with the 56th Fighter Group of the Eighth Air Force, it was early 1945. The European war ended before the young pilot saw action.

Returning to civilian life at the war's end, Rodney knew he wanted to find his life work in the aviation industry. He wanted to fly. So he boned up for an instructor's rating. He picked up a job at the Old Star Airport in Langhorne, Pennsylvania, and has been there ever since. His work there has included the run of piloting jobs such as instruction, crop dusting and charter flying. Naturally it was an ideal set-up for a fellow who likes to get in plenty of time on his own and just fool around the sky. In the course of his work at Old Star, Jocelyn even got several bookings for an aerobatics act with a PT-17 he had acquired.

No doubt the Stearman was a good airplane for general stunt work, but Pilot Jocelyn wanted something better. He knew well enough that expert stick work is only one of the requisites of precision flying. The second is the right airplane for the job. But he knew also that there is no plane in production in this country today which fills the bill. Bevo Howard uses a German-made Buecker Jungmeister of prewar vintage to perform his spectacular routine. And of course diminutive Betty Skelton has her "Lil' Stinker," a ship built especially for her type of flying. If Rod had any hopes of becoming a top-flight performer, he realized he would have to find an airplane to match his talents.

In considering the types of airplanes used in aerobatic work over the past twenty years, Rodney was particularly attracted to the Great Lakes Sport Trainer. This was the ship which the famous Tex Rankin had used back in the Thirties when he established a world's record for consecutive outside loops which still stands. Dorothy Hester, too, had been a sensation at the National Air Races in those days in that type of plane.

The Great Lakes was a small two-place biplane of

26'8" span, characterized by a swept-back upper wing and a 90 hp four in-line Cirrus engine. It was an unusually rugged ship and had been produced by a now defunct company which built some of the first dive bombers for the U. S. Navy. It was noted for its superior handling in maneuvers of the outside type such as outside loops, inverted turns, *et cetera*. What is more, these ships have stood up well over the years and are still available in a limited number. So the Great Lakes was the ship for Jocelyn.

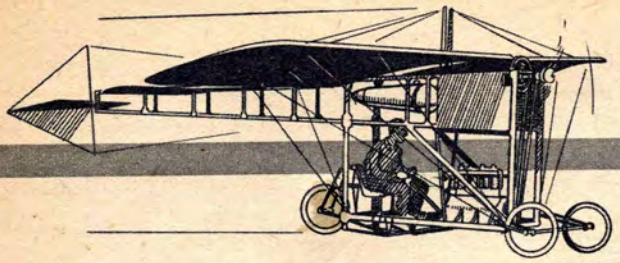
The first Great Lakes that Rod acquired turned out to be an early model which had smaller tail surfaces than the type which had built up the stunting reputation. After an intensive search he found another plane, a 1932 model this time, which had what he wanted. Using parts from both planes the ambitious pilot constructed what he feels is an ideal aerobatic airplane. He discarded the obsolete engine, of course, and installed a 160 hp Kinner with pressure type carburetor. With this added power and shortened nose the airplane was highly maneuverable. Its turning radius was remarkably short while it still sported a good top speed.

These are vital factors in competitive flying. Building an airplane is easier said than done, even if it does employ ready-made parts, and the whole job occupied some eight months of the stunt flyer's spare time. But when he was done, he literally knew his airplane inside out. Its performance lived up to his expectations in every degree and prompted Rod to think about the Gulf event at Miami.

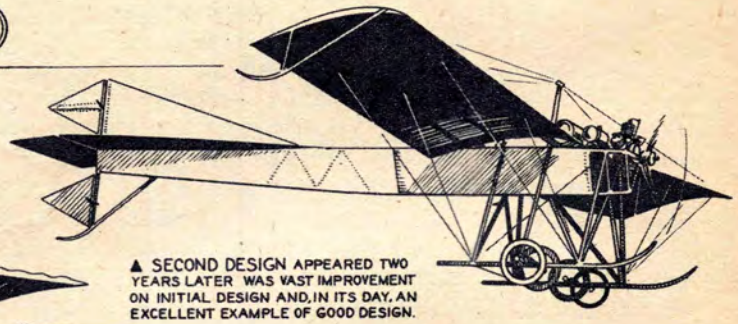
In the Gulf National Aerobatic Championship is found a contest which puts the nation's best precision flyers into action on a competitive basis. Its method of judging is strictly scientific and guarantees a fair decision. A list of some 75 maneuvers covering everything in the aerobatic book with each bearing a value in possible points for perfect (*Continued on page* 77)

Knife edge flight. Final maneuver of Rod's repertoire. Looks easy? But an airplane is not made to fly on side. Takes a sharp pilot to keep it in the air.

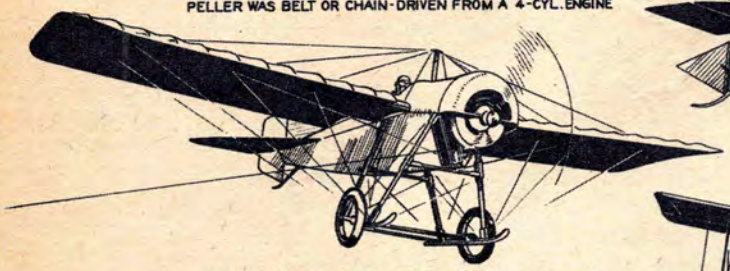
Air Progress



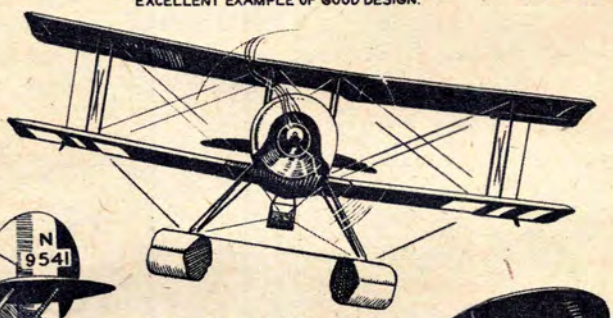
▲ FIRST BLACKBURN DESIGN WAS PRODUCED IN 1909. EXACT STRUCTURAL DETAILS ARE NOT CLEAR BUT CONFIGURATION IS STRICTLY ACCURATE. THE 2-BLADED PROPELLER WAS BELT OR CHAIN-DRIVEN FROM A 4-CYL. ENGINE

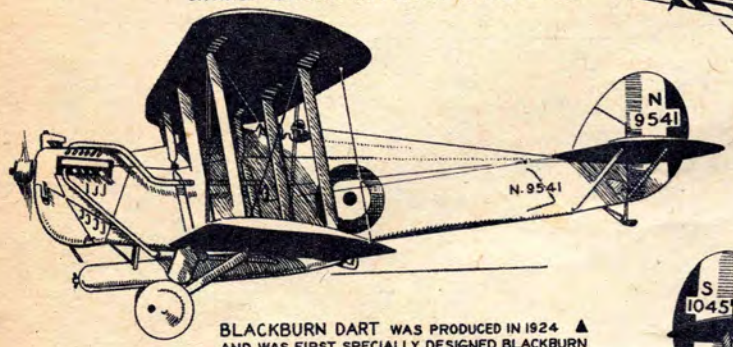


▲ SECOND DESIGN APPEARED TWO YEARS LATER WAS VAST IMPROVEMENT ON INITIAL DESIGN AND, IN ITS DAY, AN EXCELLENT EXAMPLE OF GOOD DESIGN.



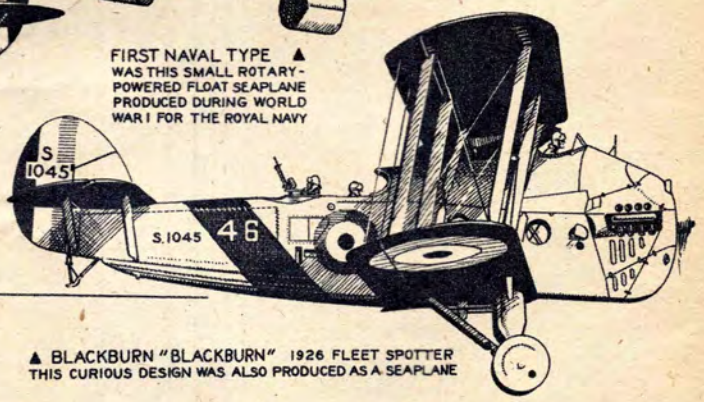
1912 BLACKBURN WAS CLEANER, MORE POWERFUL ▲ THAN 1911 MODEL. RECENTLY THIS PLANE WAS RECONDITIONED AND FLOWN WITH THE ORIGINAL 50-H.P. MOTOR



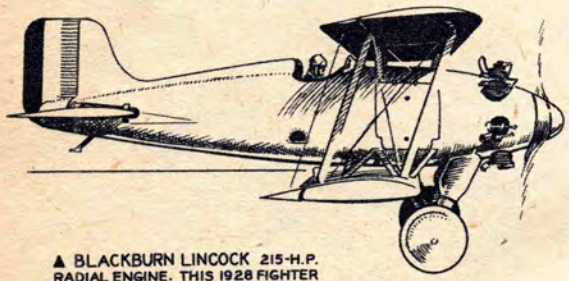


BLACKBURN DART WAS PRODUCED IN 1924 ▲ AND WAS FIRST SPECIALLY DESIGNED BLACKBURN TORPEDO-BOMBER AND FORERUNNER OF A LONG LINE OF SIMILAR AIRCRAFT - ALL FINE MACHINES

FIRST NAVAL TYPE ▲ WAS THIS SMALL ROTARY-POWERED FLOAT SEAPLANE PRODUCED DURING WORLD WAR I FOR THE ROYAL NAVY



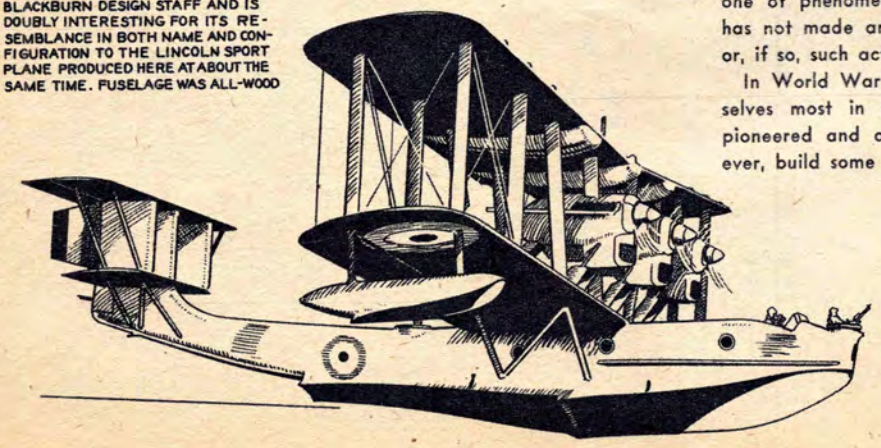
▲ BLACKBURN "BLACKBURN" 1926 FLEET SPOTTER THIS CURIOUS DESIGN WAS ALSO PRODUCED AS A SEAPLANE



▲ BLACKBURN LINCOCK 215-H.P. RADIAL ENGINE. THIS 1928 FIGHTER INDICATES THE VERSATILITY OF THE BLACKBURN DESIGN STAFF AND IS DOUBLY INTERESTING FOR ITS RESEMBLANCE IN BOTH NAME AND CONFIGURATION TO THE LINCOLN SPORT PLANE PRODUCED HERE AT ABOUT THE SAME TIME. FUSELAGE WAS ALL-WOOD

Robert Blackburn, founder of the British Blackburn Aeroplane and Motor Company, designed and built his first flying craft in 1909. It was not a great success but his second effort resulted in one of the best airplanes of the period. From then on the entire Blackburn story has been one of phenomenal progress. Curiously enough this firm has not made any particular effort in the jet-power field or, if so, such activity has not been publicized.

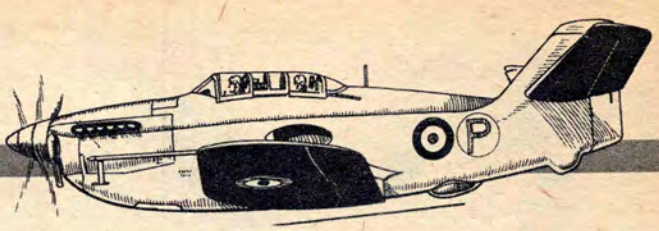
In World War I Blackburn aircraft distinguished themselves most in Naval aviation, a field in which they pioneered and are still quite important. They did, however, build some notable landplanes such as the Blackburn



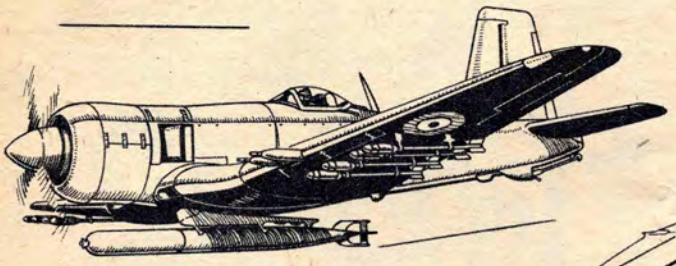
◀ BLACKBURN IRIS THIS LARGE 2,100-H.P. FLYING BOAT WAS A MODIFICATION OF ANOTHER BIG BLACKBURN DESIGN PRODUCED IN 1926. ORIGINALLY INTENDED AS A LONG RANGE NAVY BOMBER IT WAS ALSO USED COMMERCIALLY.

The Blackburn Story

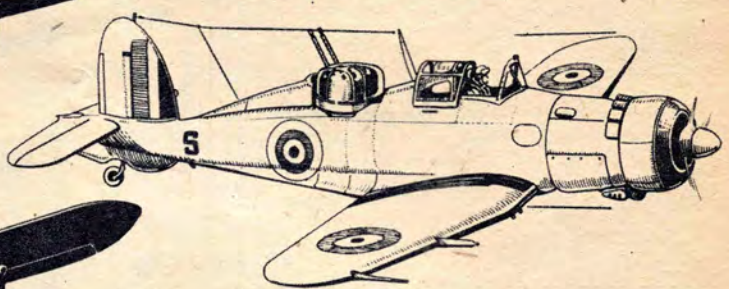
By DOUGLAS ROLFE

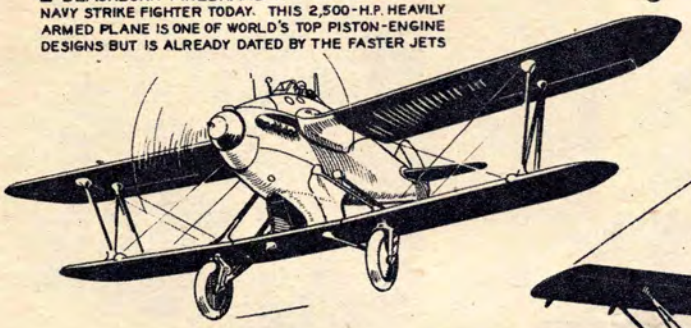


BLACKBURN Y.A.5 PROTOTYPE MODEL OF ▲ LATEST BRITISH LONG RANGE ANTI-SUBMARINE AIRCRAFT. IT FEATURES CONTRA-ROTATING PROPELLERS AND TRICYCLE LANDING GEAR AND IS IN STRIKING CONTRAST WITH THE FIRST DESIGNS



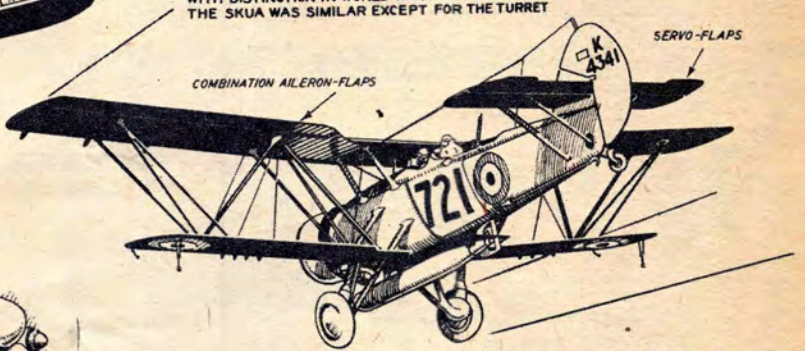
▲ BLACKBURN FIREBRAND V. STANDARD BRITISH NAVY STRIKE FIGHTER TODAY. THIS 2,500-H.P. HEAVILY ARMED PLANE IS ONE OF WORLD'S TOP PISTON-ENGINE DESIGNS BUT IS ALREADY DATED BY THE FASTER JETS

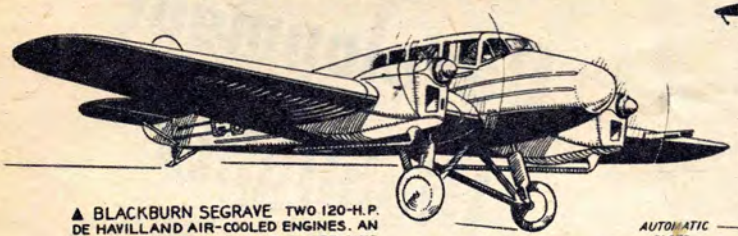




BLACKBURN ROC 905-H.P. RADIAL ENGINE ▲ A BRITISH NAVY ATTACK-BOMBER WHICH SERVED WITH DISTINCTION IN WORLD WAR II. IT'S COUSIN THE SKUA WAS SIMILAR EXCEPT FOR THE TURRET

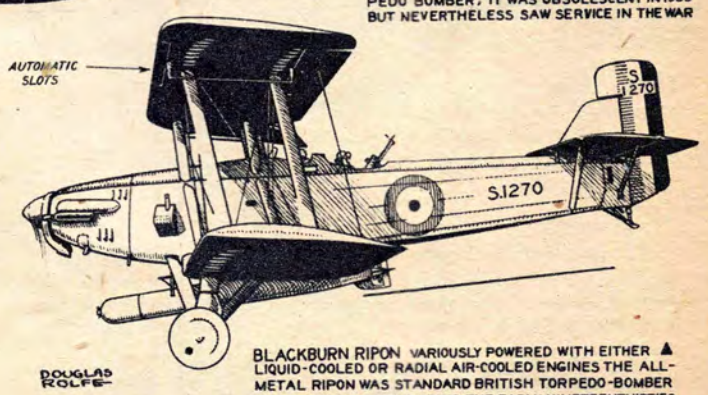
▲ DAY & NIGHT FIGHTER 600-H.P. ENGINE. A COMPARATIVELY UNKNOWN BLACKBURN DESIGN PRODUCED IN SMALL NUMBERS IN 1935.





BLACKBURN SHARK 700-H.P. RADIAL ▲ ENGINE. LAST BLACKBURN BIPLANE TORPEDO BOMBER, IT WAS OBSOLESCENT IN 1939 BUT NEVERTHELESS SAW SERVICE IN THE WAR

▲ BLACKBURN SEGRAVE TWO 120-H.P. DE HAVILLAND AIR-COOLED ENGINES. AN INTERESTING 1933 FOUR PASSENGER SHIP WITH A MAXIMUM SPEED OF ABOUT 138 M.P.H.

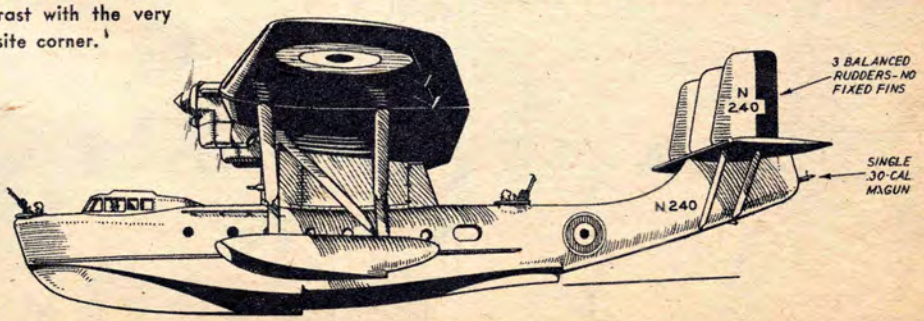


BLACKBURN RIPON VARIOUSLY POWERED WITH EITHER ▲ LIQUID-COOLED OR RADIAL AIR-COOLED ENGINES THE ALL-METAL RIPON WAS STANDARD BRITISH TORPEDO-BOMBER FOR SEVERAL YEARS DURING THE EARLY NINETEENTHIRTIES

Kangaroo—an oversize bomber that resembled the old Handley Page Type 400 and was the first airplane to fly from England to Australia (Capt. Keith Smith, late 1919).

The illustrations indicate the Blackburn preoccupation with naval aircraft of all types, but today they also put out one of the best 15-ton airfreighters on the market. In the past they have also manufactured lightplanes and civil aircraft of every description.

Their latest product, the prototype anti-submarine attack plane, shows the typical Blackburn fondness for naval types and incidentally affords a striking contrast with the very first Blackburn design shown in the opposite corner.



BLACKBURN SYDNEY THREE 525-H.P. ▶ ROLLS-ROYCE ENGINES THIS LARGE NAVY PATROL BOAT REPLACED THE IRIS CLASS BOATS. ITS GENERAL DESIGN IS SUGGESTIVE OF THE MUCH LATER CONSOLIDATED PBY BOATS USED BY THE U.S. NAVY IN LAST WAR

Wingless Wonder III. A B-26 used by Air Materiel Command at Wright-Patterson Field for skid tests. Plane is taxied up to a speed of 150 mph and the brakes are jammed on. The stopping distance is then measured, as well as the effect on tires.

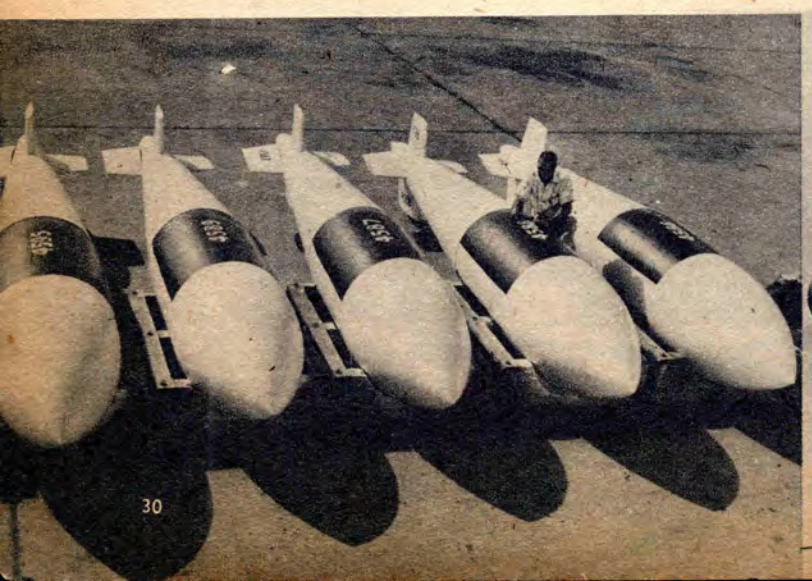
An Aeroproducts propeller (right) being installed on the Convair Turboliner, first of its kind in USA. The 13½ ft. diameter prop is especially designed for the 2,750 hp Allison turbo-prop engines and has a self-contained hydraulic unit.

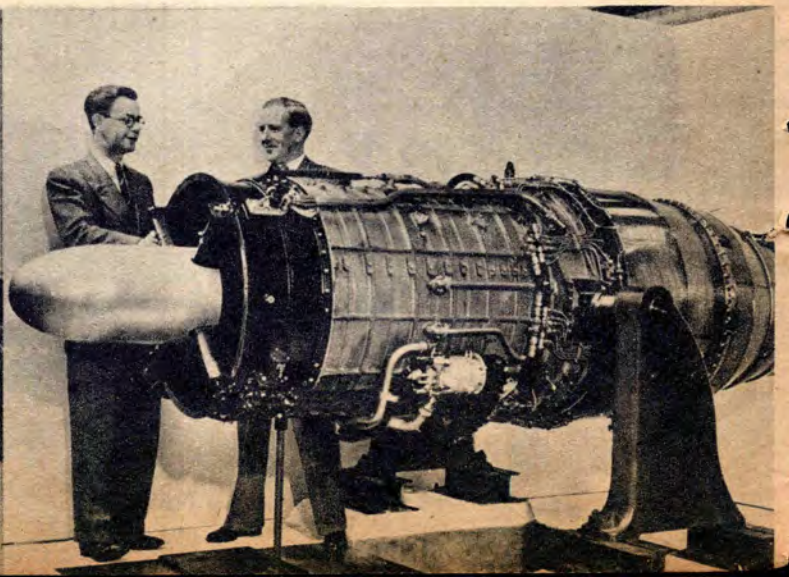
The floating tent above is a 20-man life raft developed by Air Materiel Command for use in ditching operations. With its canopy and sides up it is snug and dry as well as highly buoyant. The canopy has a radar reflector to facilitate search.

Development Highlights

12,000 lb. dummy bombs to be dropped from 8-mile height by B-36 during series of test flights conducted by Consolidated-Vultee, in order to furnish additional data on B-36 bombing system as well as on performance of bombs dropped from extreme heights.

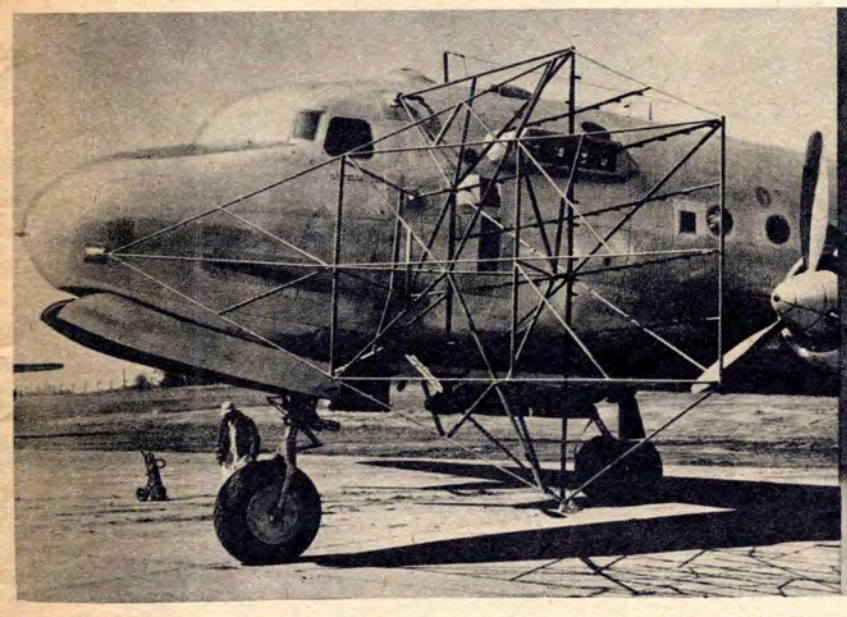
The Sapphire. Considered the most powerful jet engine in the world, it was designed and built by Armstrong-Siddeley of England. In recent 150-hour tests it produced 7,200 lbs. of thrust. Rights for its manufacture were acquired by Wright Aeronautical Corp.





1951 Pacer, built by Piper Aircraft Corp., is offered this year in two models, both powered by 125 hp Lycoming. The 135 is equipped with a controllable prop while the 125 is not. Both models have flaps. Both finished with a plastic non-flammable covering. Span is 29.3'.

Bell H-12 helicopter. It can carry eight fully equipped infantrymen, or transformed into ambulance, six litter cases. Built-in internal hoist can lift a 400-lb. load directly into the cabin. The craft is powered by 600 hp P&W engine.

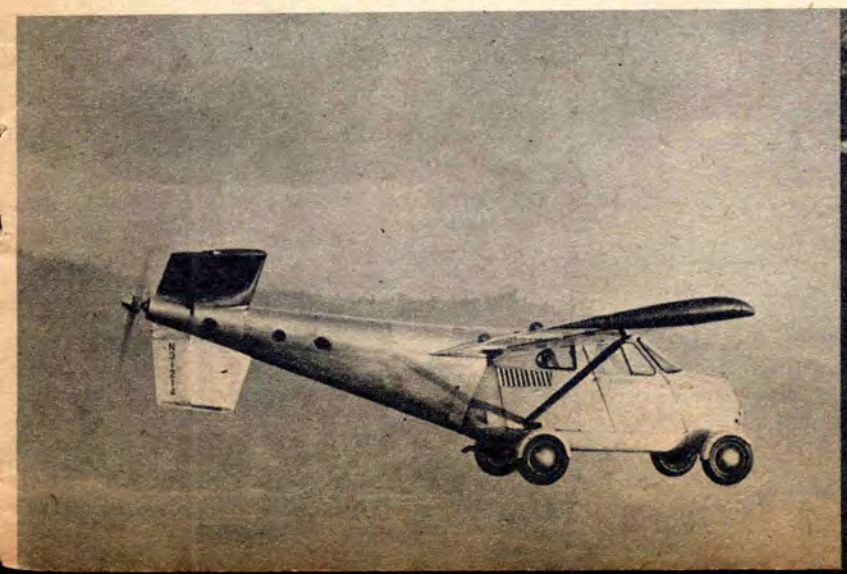


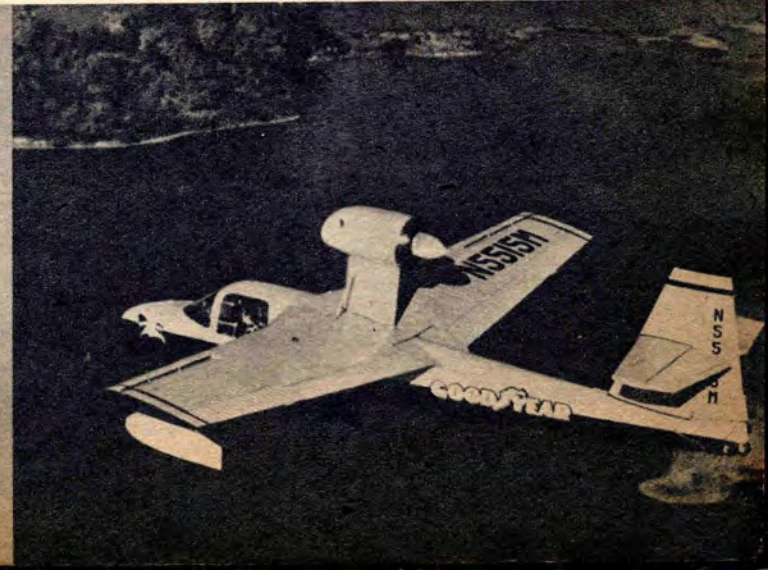
Squirting Gertie or the flying ice box. This C-54 is used by the Air Materiel Command for experimentation in icing. Complex piping carries water with which the plane squirts itself in flight to produce snow, fog or ice. Test instruments inside record the results.

Prototype of the Martin 404, latest twin-engine airliner by the Glenn L. Martin Co., a number of which are on order by airlines. Carries 40 passengers and has top speed of 312 mph. Engines are 2,400 hp P&W's. Max. range 2575 mi.

The Aerocar in slightly modified form takes to the air. Modifications include elimination of the long belly fin, substituted by "Y" type tail and reduction of wing dihedral. Ship is reported to be one of the sweetest flying lightplanes. First 10 will go to CAA.

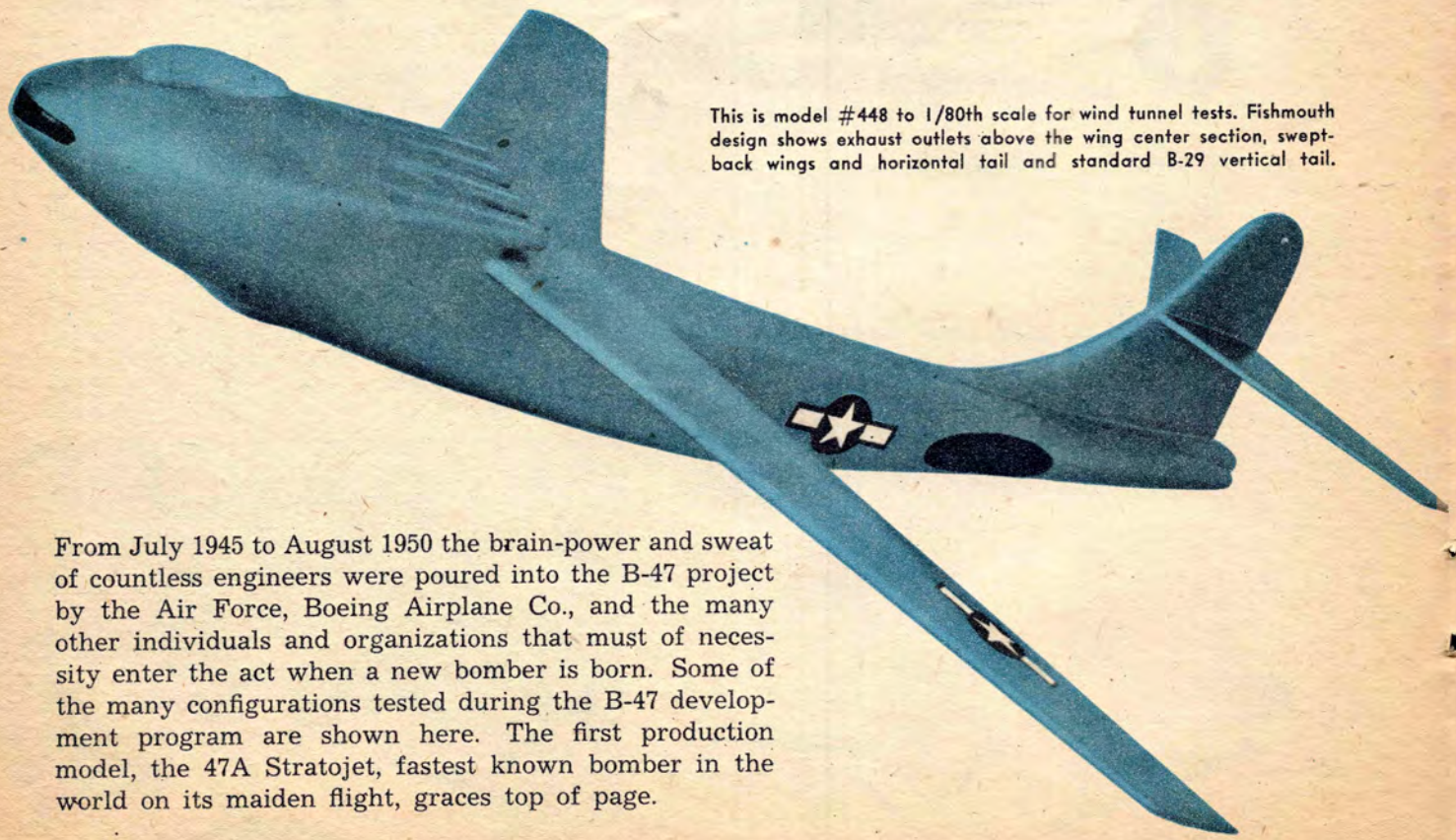
Goodyear's new Duck. Model GA-22 differs from the previous ones by having capacity for four instead of three and being powered by 186 hp engine. Has fully retractable cross-wind landing gear, can be used also as cargo plane.





B-47 FROM BIRTH TO BATTLE

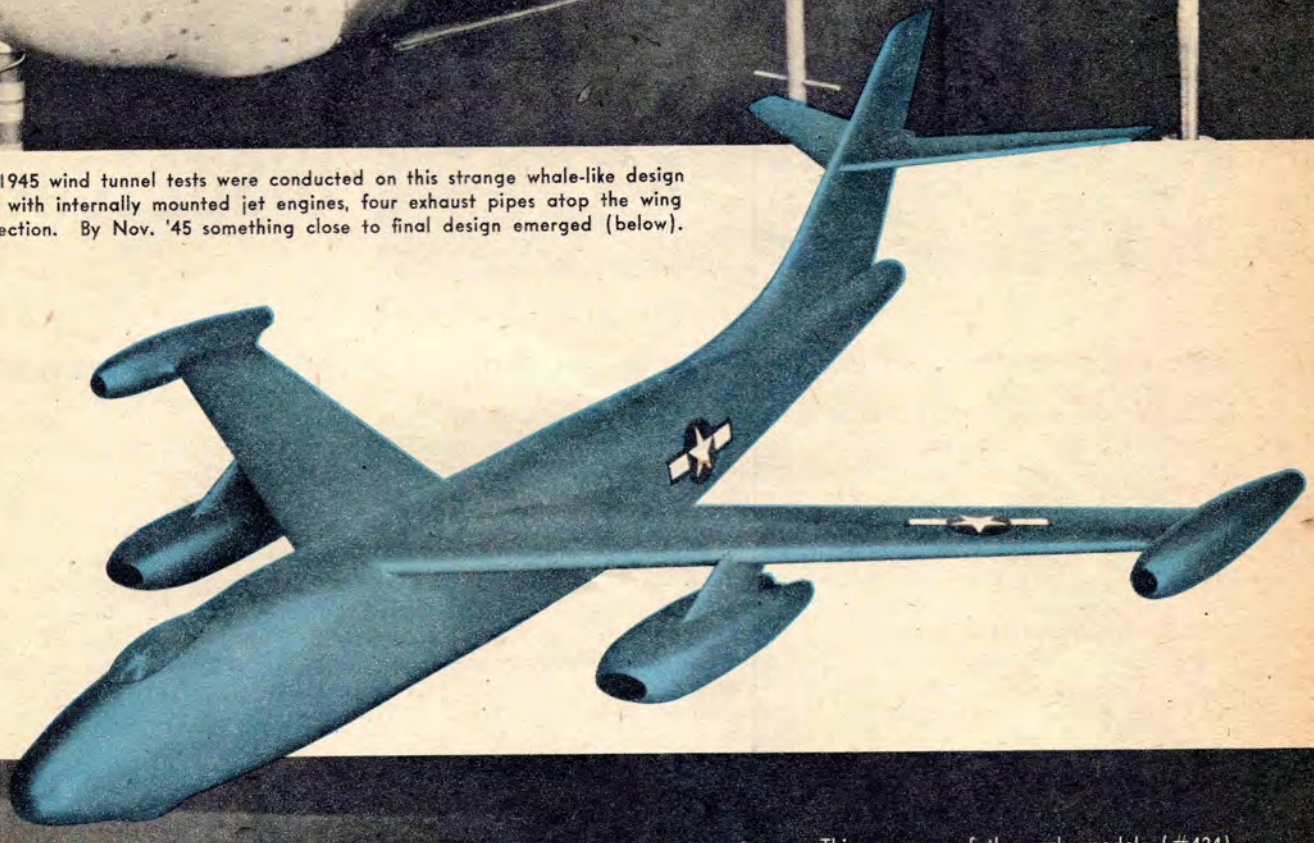
It's a long jump to the finished production bomber (above) from the early design stages—ask Boeing



This is model #448 to 1/80th scale for wind tunnel tests. Fishmouth design shows exhaust outlets above the wing center section, swept-back wings and horizontal tail and standard B-29 vertical tail.

From July 1945 to August 1950 the brain-power and sweat of countless engineers were poured into the B-47 project by the Air Force, Boeing Airplane Co., and the many other individuals and organizations that must of necessity enter the act when a new bomber is born. Some of the many configurations tested during the B-47 development program are shown here. The first production model, the 47A Stratojet, fastest known bomber in the world on its maiden flight, graces top of page.

In July 1945 wind tunnel tests were conducted on this strange whale-like design (above) with internally mounted jet engines, four exhaust pipes atop the wing center section. By Nov. '45 something close to final design emerged (below).



This was one of the early models (#424) shown mounted in tunnel for extensive testing. Note that the arrangement of the paired jet engines was similar to the B-45.

Your Job in Aviation

Aircraft Dispatcher

There are many interesting jobs in aviation besides piloting; here's one that requires special skill

■ Joe Doyle thumbs through a thick mimeographed book bearing the imposing title, "Flight Operations Policy and Procedure Manual." He reads scores of regulations specifying how he shall perform his job. They tell him in detail what to do from the time he walks onto the job until he checks out for home eight hours later. Significantly, at the bottom of each page he sees repeatedly this all-important alternative: "Nothing in this manual replaces the exercise of good judgment on the firing line."

You seldom hear about Joe's job, never about Joe as a person. His is one of the most responsible posts in airline operation, either non-scheduled or scheduled. He is an aircraft dispatcher. He qualified by attending a C.A.A. approved school, then passing the most impersonal examination ever contrived by experienced examiners. Machines "read" his paper. Either he passed by a set mathematical percentage, or he failed. No ifs or buts.

Let's say Joe is a TWA dispatcher, and glance briefly at his responsibilities. Not until Joe signs a release may any flight take off. With the captain, he must agree the flight can be made safely in accordance with company and Civil Air Regulations. He specifies the amount of fuel to be carried. He may halt a flight when he considers the weather unsatisfactory, change the clearance during flight, inform the captain of changing conditions, track down an airplane should the captain not report on schedule. In a nutshell, Joe is the senior operations department representative in his flight dispatch zone, and he conducts all flight operations.

Joe hovers constantly, like a setting hen, over four or five flights. He knows exactly where each plane is located, give or take a few miles, and can tell you within a mile or two its ground speed. He may work days, early night or graveyard. You see him slide into his seat at 1 a.m. Quickly he absorbs reports, and sets out to match his judgment with changing weather conditions over a wide area of the United States. But Joe doesn't base his decisions on guesswork.

Let's glance over his shoulder for a closer view. Flight #94, destination Chicago, is due out of Los Angeles International Airport at eight o'clock. While Joe keeps an eye on other flights within his sector, he checks frequently on winds and rains, as well as overall weather. Shortly after five, the company's weather man hands him a map, prepared from the U.S. Weather Bureau's reports. At seven, the weather department prepares a forecast based upon the map. At seven, too, in walks the plane's captain. Joe awakened him an hour earlier. That's part of his responsibility, too—getting the crew on the job.

Joe and the captain step into the adjoining weather office. Tail winds this morning, 60 miles an hour to Denver, 50 between Denver and Chicago. Joe gives the captain a choice of three routes—direct, the regular airway, north to Denver and Omaha. The captain chooses the Denver route today, and elects to fly at 19,000 feet. That altitude, he knows, will keep the Constellation above three separated layers of intervening clouds, smooth sailing all the way. The weather man draws the altitude in on the profile map.

Now the pair study the flight plan. Both sign, and Joe keeps a copy. The captain must report at several check points. Joe fills in the copy as word comes in, noting especially the time at each point. He wants to know whether the flight is ahead of or behind schedule, and why. Winds might change to the north, and that could mean an intermediate landing for extra fuel.

Also routine, Joe sends the captain new forecasts during flight, especially (*Continued on page* 59)

Ole Slippery

Good way of getting started with team racing is with this famous design—more requested than any other AT aircraft

By S. CALHOUN SMITH

■ Team racing is probably the best thing that has happened to control-line flying since glow fuel was introduced.

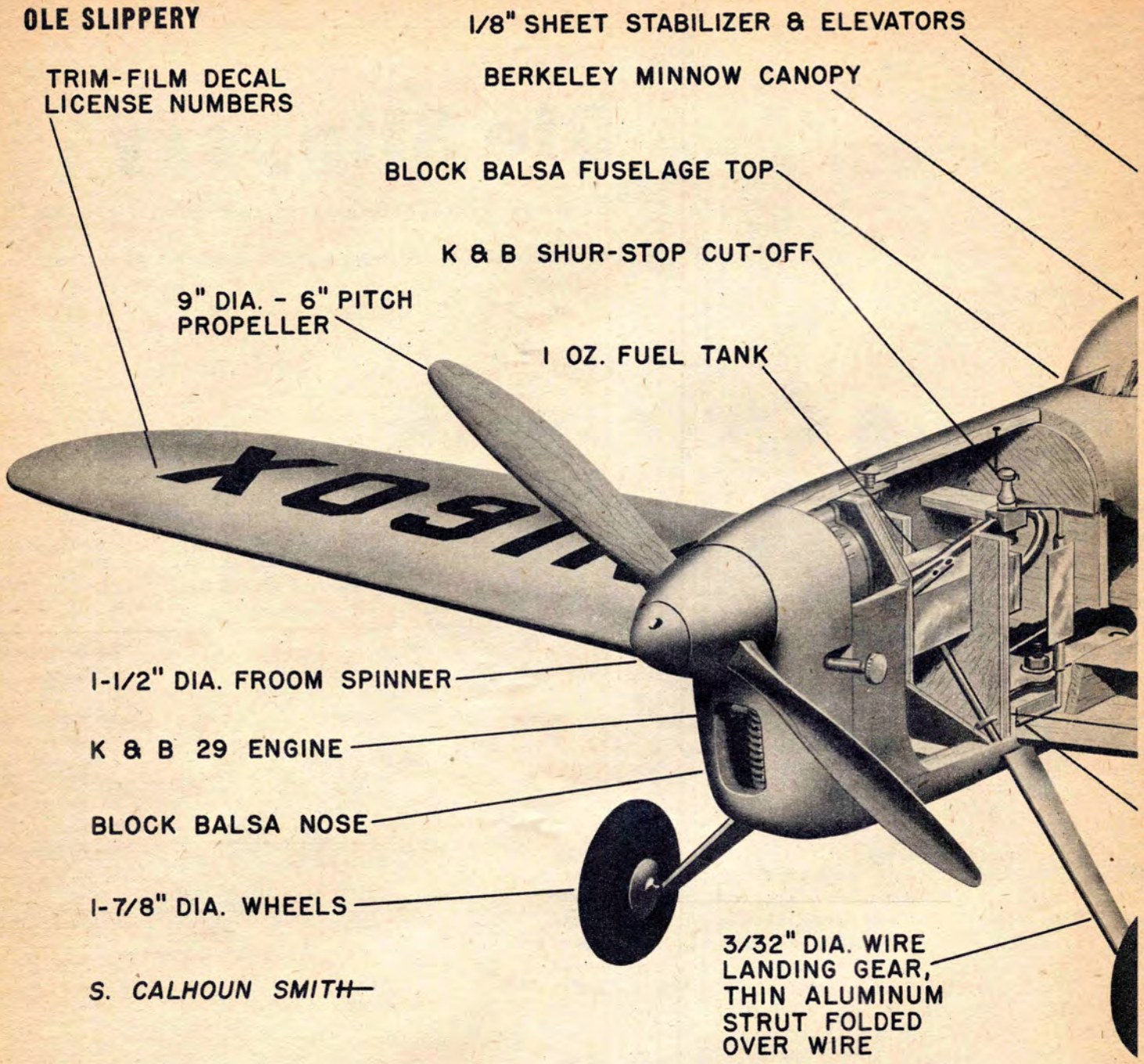
If you haven't tangled wires with other racers yet, "you haven't lived." Some builders have stayed away from the sport because it looks pretty complicated at first glance. We won't deny this, but as every contest minded modeler knows any phase of model competition puts a premium on performance of both model and flyer. Team racing is no different, and that little extra effort is well repaid when the checkered flag drops on your model. Once you try it, you'll buy it. We're sure team racing has that extra something you'll like. The direct competition is a refreshing change from the old battle between model and stop watch.

The West Coast led the way in team racing and the very workable set of rules they established are now part of the A.M.A. book.

Various interested modelers have kicked around the rules a bit with rather freakish results. Using fuel tanks of greater than one-ounce capacity, for instance, destroys the whole basic idea of team race competition. It is fine for an endurance contest but team racing isn't an endurance contest from the standpoint of getting airborne with the greatest fuel load. The challenge of nursing as many laps as possible from one ounce of tiger milk really requires thought and experiment. Here's where the sport enters into the picture, because the modeler with the hottest ideas can take home the hardware.

Fuel economy without sacrificing too much speed means finding a good combination of fuel and propeller. Many modelers restrict the intake stack on the engine and by doing this can double the number of laps obtained from that one ounce of fuel. Lower pitch props are used for fast acceleration and flying in the seven-lap races. Higher pitch props giving best speed are used in the longer races where speed counts the most. Heavily methanated fuels should be used for short dashes, and the slowest burning fuel should be used for longer races. Some modelers use gasoline and oil-based glow fuels for maximum economy.

Ole Slippery was conceived a while back when team racing was first starting. It originated in an illustration in Air Trails. The gap between picture and model has been filled in with considerable time



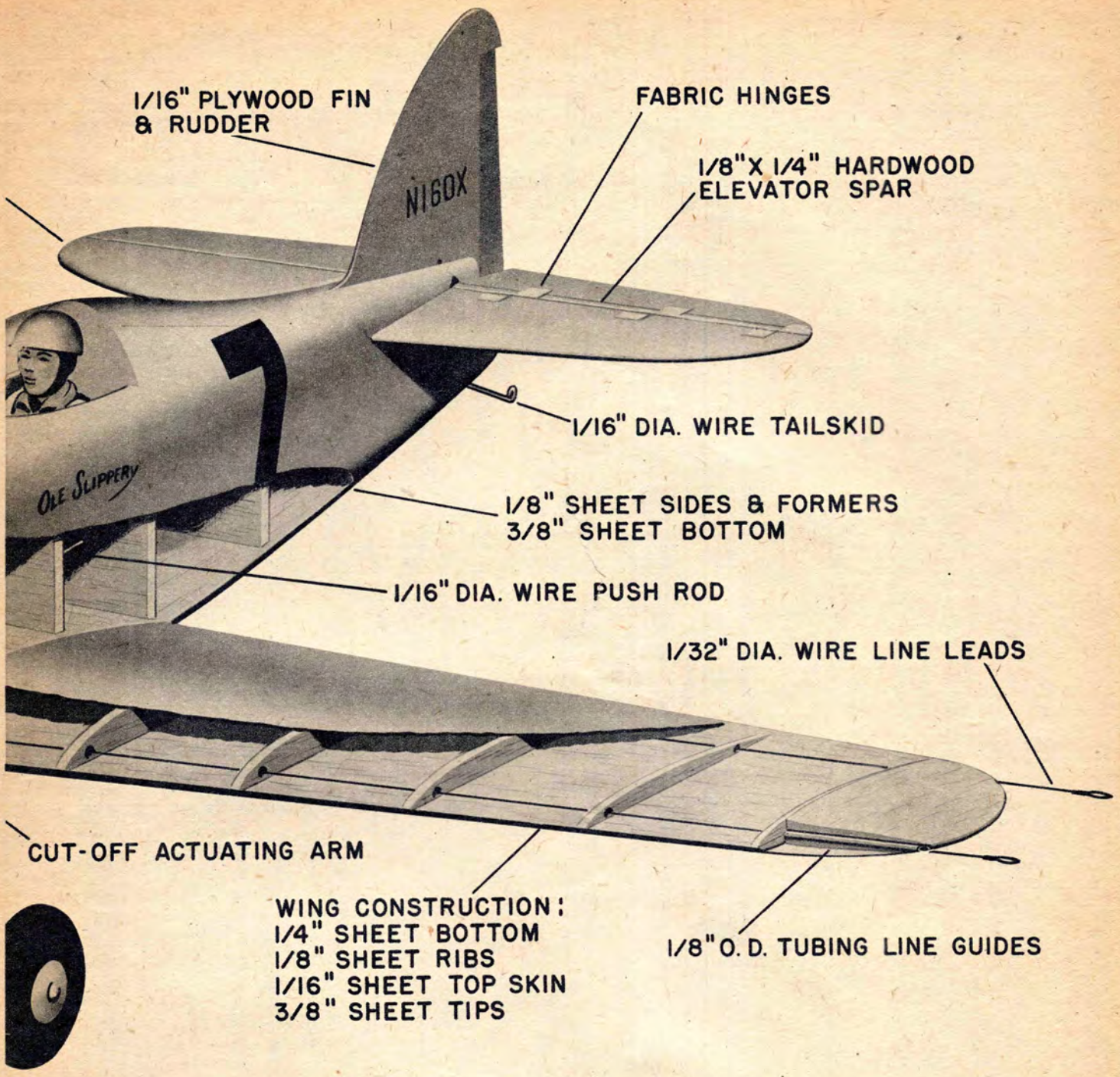
watching and flying in team races. We don't claim Ole Slippery to be the final word, but rather an incorporation of pet design ideas.

Construction is conventional and has proved rugged and light. A.M.A. rules governing fuselage size are complied with. Button-head, the pilot, is the right size. Wing area is 140 sq. in., considerably greater than the 125 sq. in. minimum. The lifting airfoil (zip-zip section) is thicker than ordinarily used. The reduction in wing loading is a definite aid to acceleration and helps the model get airborne quicker. It is doubtful that the slightly increased drag of this type of wing offsets its advantages.

Weight is 23 oz. This figure could probably be reduced by using medium grade balsa, rather than the heavier hard grade used in the original model. However, don't employ such soft wood that overall strength suffers.

The drawings show two different engine installations. The original has been flying on a well-broken-in McCoy 29. With hot fuel, a 9/6 prop, speed is 82 mph for 23 laps. With an intake restriction, slower burning fuel and higher pitch prop, speed is 70 mph for 32 laps.

Construction may be started with the fuselage. As can be seen from the drawings this will vary slightly depending on the engine used. The K&B 29 is mounted radially on a piece of ¼" hardwood plywood. The McCoy 29 is beam-mounted on 5/16" x ½" hardwood bearers. Before starting construction,



study the plans for differences in structure for the particular engine you wish to install. This description will be for the McCoy 29 engine.

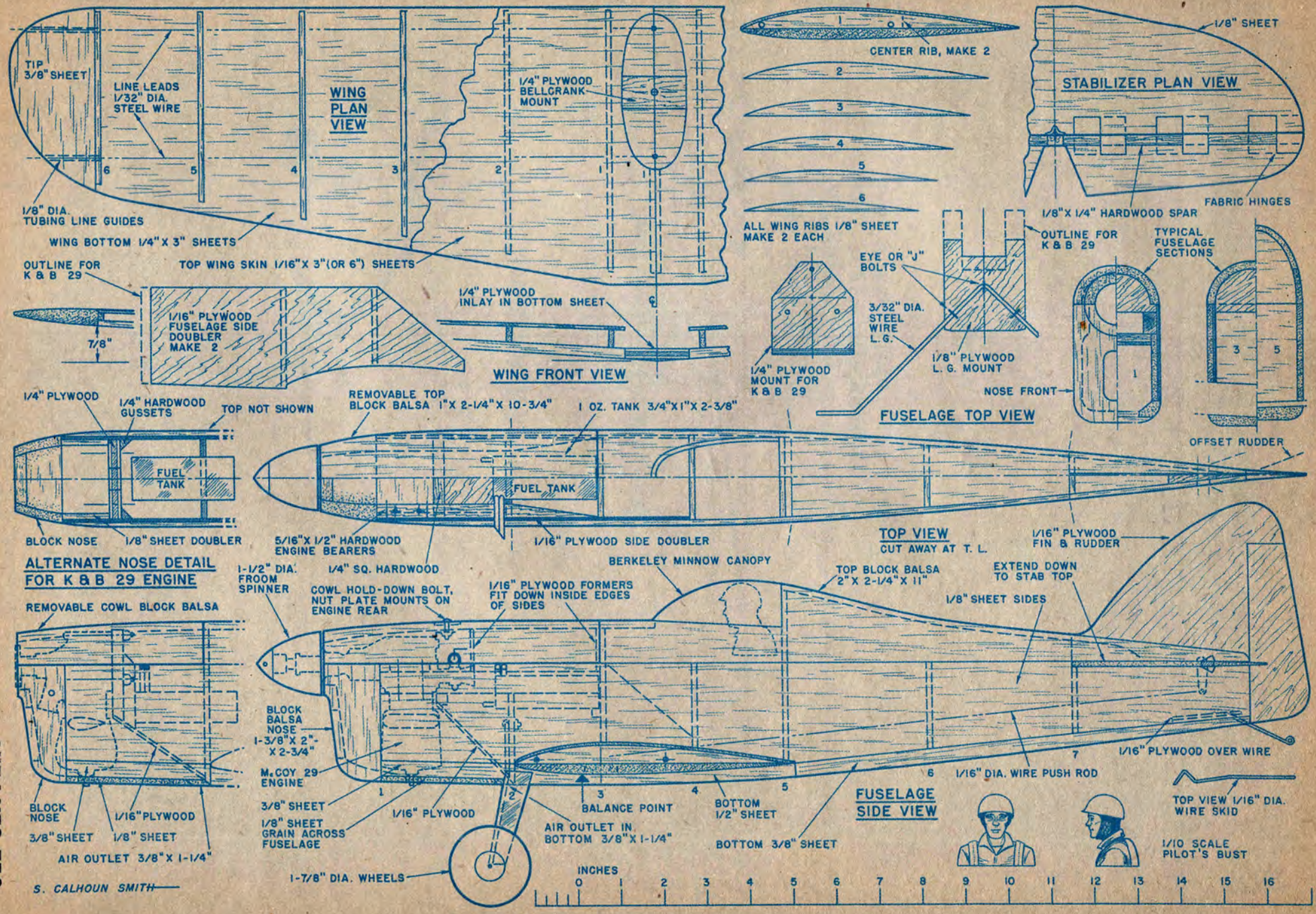
Cut out the 1/16″ plywood fuselage side doublers and the hardwood engine bearers. These should be joined with Weldwood glue. Put a couple of small wood screws through the plywood into the bearers for a tight joint. Cut out the ⅛″ sheet fuselage sides and glue the plywood doublers to the front portion, again using Weldwood glue. Clamp carefully and let dry thoroughly, at least eight hours.

The landing gear mount plywood, balsa formers, block balsa top and cowling can be cut out and any other cut-out work can be done while the sides are drying.

The sides are joined upside-down over the plan top view. The landing gear wire should be bent to shape and joined to the plywood mount before the plywood is located between the sides. Use eye or "J" bolts for fastening the gear to the mount. Use Weldwood glue here and on the ¼″ sq. hardwood spacer across the bottom of the bearers just behind the engine. Add the 1/16″ plywood wall between the spacer and the landing gear bulkhead. This acts as a brace and deflects the air from behind the engine downward to the air outlet in the fuselage bottom.

Add the formers in the fuselage, working from front to rear. Remember to punch holes for the pushrod in the formers. Make formers with grain running across the fuselage. While (*Continued on page* 81)

OLE SLIPPERY



S. CALHOUN SMITH

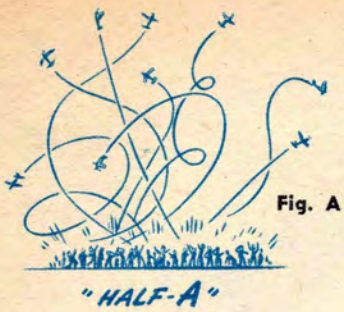


Fig. A


Fig. B

Fig. C

Were you there, chum? At the Nationals that is. If you missed the big battle you'll welcome this detailed report on the trend in free flight by H. A. Thomas

Fig. D

Wire-less Report

■ Memories of prewar National Meets become enhanced as each succeeding feverish Big Brawl goes by. The relative calm which we used to know is missing nowadays as the Nats spreads out to embrace an ever-increasing number of events involving models in an amazing conglomeration of types and sizes. The '50 Nats planners had to provide for 72 separate categories of competition, 48 of which were free flight.

Because of rules peculiarities, it is possible for a single free flight model to enter a payload event, then fly R.O.W. and, by switching engines, fly in two or three displacement categories of free flight events as well. Here is the rub: the free flight contestant brings a single model to the meet, flies it all week in many events, while a stunt contestant with a carload of models can enter and fly only one. Half-A jobs came in tidal waves (Fig. A).

Light, inexpensive, simple Half-A engines are an obvious shot-in-the-arm for modeling. A successful experiment in Half-A PAA payload flying was held with several groups, led by the Oklahoma boys, promoting it. Carrying a single two-ounce dummy occupant, the little ships flew well from take-off and did not appear unduly handicapped by the wind. Top winner Frank Ehling totaled over 13 minutes duration with his Wasp-powered original cabin hi-wing job. This cabin requirement seems a good one—it retains some realism and bucks the trend of the little jobs toward glider-like simplicity.

The typical Half-A free flight job is ultra-simple. Not a single cowled engine caught our eye. Fuselages of profile sheet, box, diamond and crutch construction were prevalent. Many jobs used wings and tails doubtless borrowed from rubber models. Several were chopped-off rubber stick models (Fig. B). The majority carried standard timer and fuel cut-off gimmicks and many featured dethermalizers.

In larger free flight classes there is great variation. Many prewar designs such as Zippers, Powerhouses and Pacers are still able to compete on virtually equal terms with newest types. Dennie Davis' San de Hogan is (*Continued on page* 65)

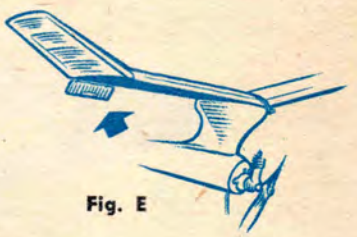


Fig. E


Fig. F

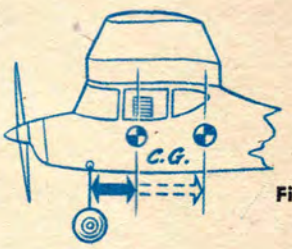


Fig. G

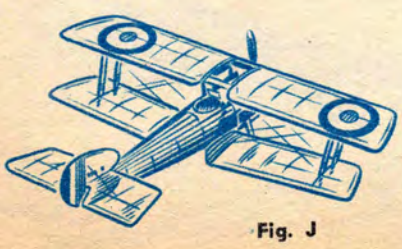


Fig. J

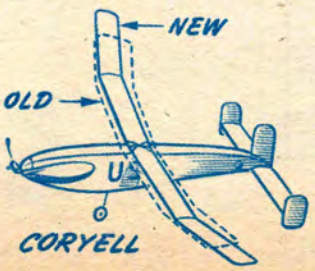


Fig. I

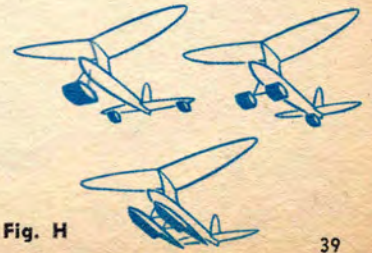
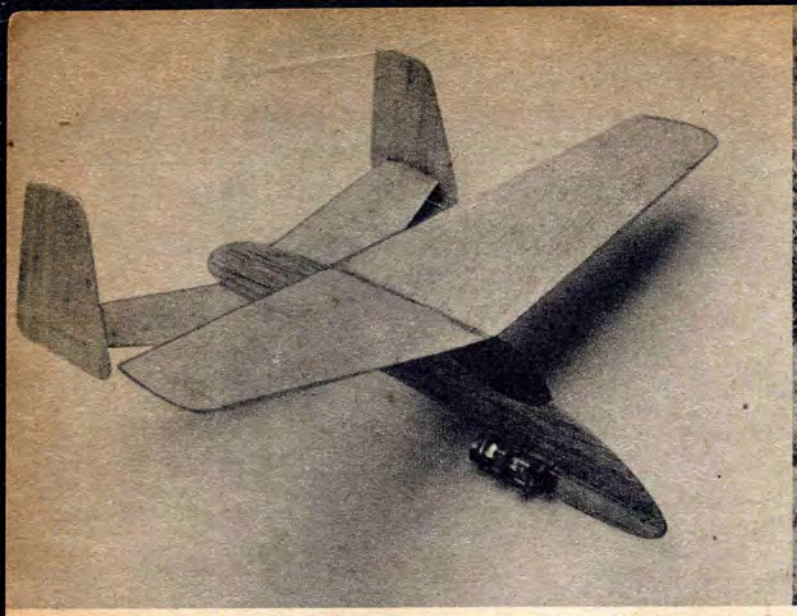
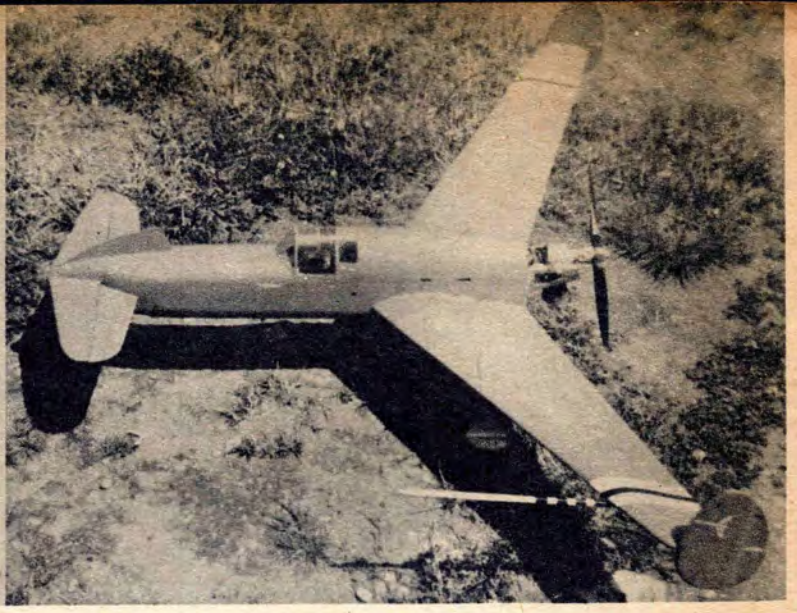


Fig. H



Bill Dean, one of England's five foremost designers, turned out this Jetex "50" powered craft based on the Duo-Monoplane AT article. Reports BD, "Ship flies well, has remarkable stall recovery."



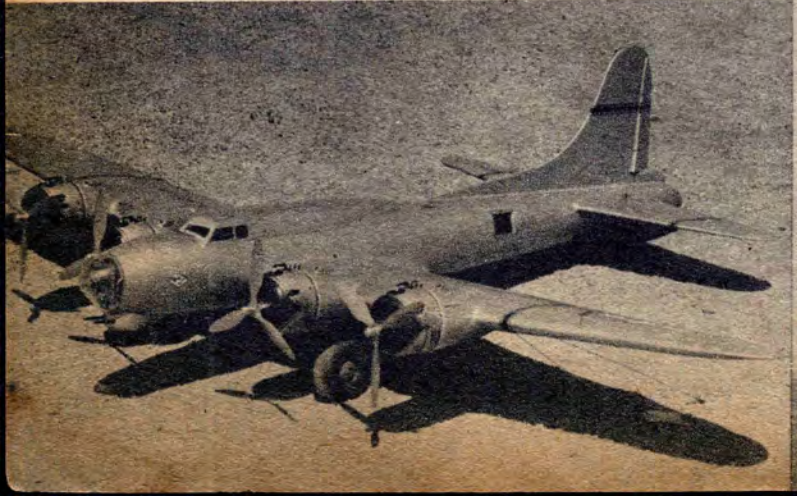
Semi-scale Curtiss XP-55 control liner by A&E student Don McDonald, Everett, Wash. Plans from photos; 40" span with 30 deg. sweepback; power Vivell 35. Flew fine until friend slackened lines!

CALIFORNIA CLIMBERS

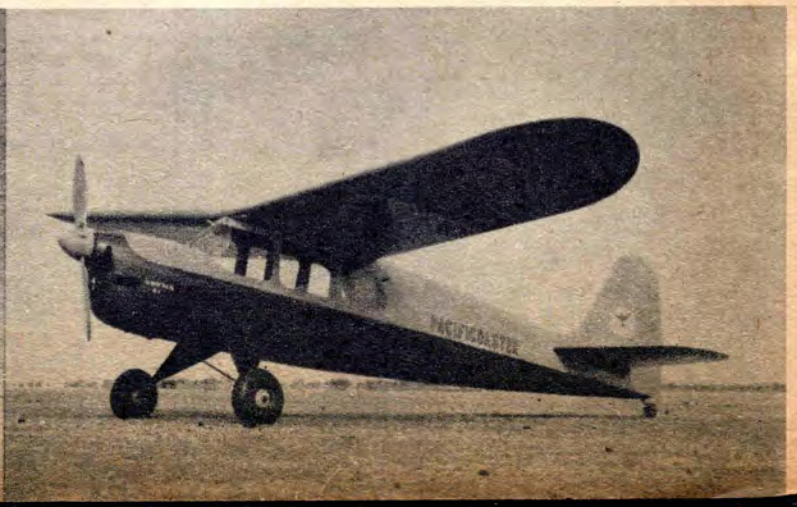
Assistant helps get Louis Culler's big towline glider away at All-Western open contest. These three fine launching shots are by J. A. Acker of Inglewood, Calif. Tail resembles Jasco jobs.

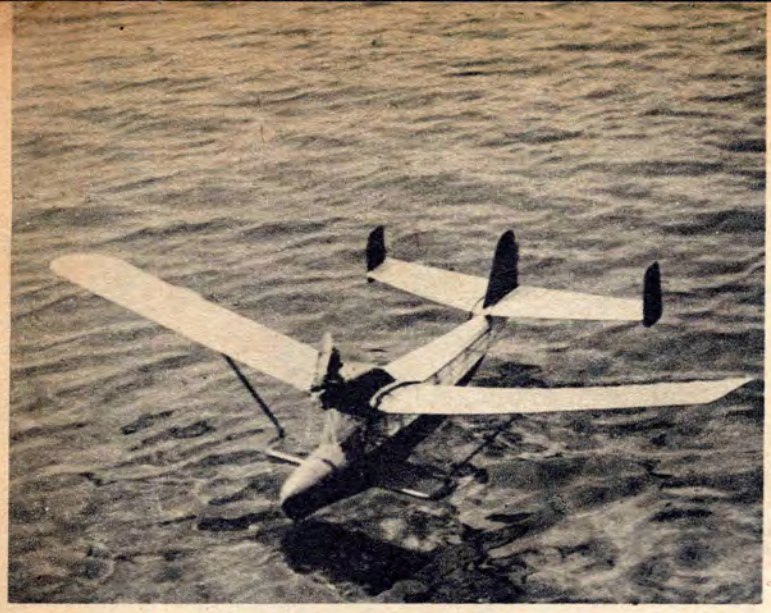
Looks like Dennie Davis, n'est-ce pas? Well, you're wrong. It's Bill Lopez, well-known member of the Thermal Thumbers with his original design Wakefield model. Spectators appear strangely camera shy.

Six years' work by Harry Haskell, Venice, Calif., went into this B-17. Span, 7'; approx. 1/15 scale; weighs 13 lbs. Flies at 40 mph on four O&R 23's. Planked with 1/16" sheet; cowlings are glue and gauze.



Pacificoaster by the famous E. J. Weathers of Inglewood, Calif. Span is 5 ft. Six lbs., 6 oz.; 21.75 oz./sq. ft. wing loading for its 4.687 sq. ft. Many are being duplicated for RC work. Orwick 64.

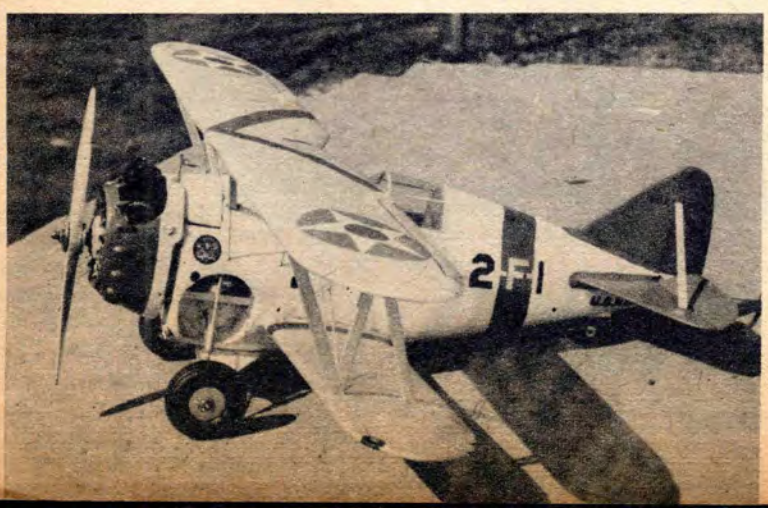




"Flying boats are the hardest nuts to crack in model building, but are the source of good fun," claims W. R. Lombarde (?)—fellows, *please print* names. Madewell 49 power; Carl Laffert, co-builder.

Note the stance, men. Don Hovis of Redondo Beach, Calif., gets his Arden .099 job off. Original design featuring very fast speed under power with good glide. Should be future winner.

This is a first model! Took 1 year to build. Grumman FSF1—right? Joe Iacobson, Wollaston, Mass., is the modeler. Flies consistently on lines, repaired after 3 minor crack-ups. Joe's a student pilot.



Dope Can

News, Views, Comments and Photos from Model Clubs and Enthusiasts in America and Overseas

■ We get off to a very pleasant start this month with the announcement that Lt. John H. "Long Jawn" Burton of the U.S. Navy was to receive the Frank G. Brewer Award for "inspiring and effective leadership in planning and carrying out the 1950 Air Youth Education and Model Airplane Programs of the United States Navy."

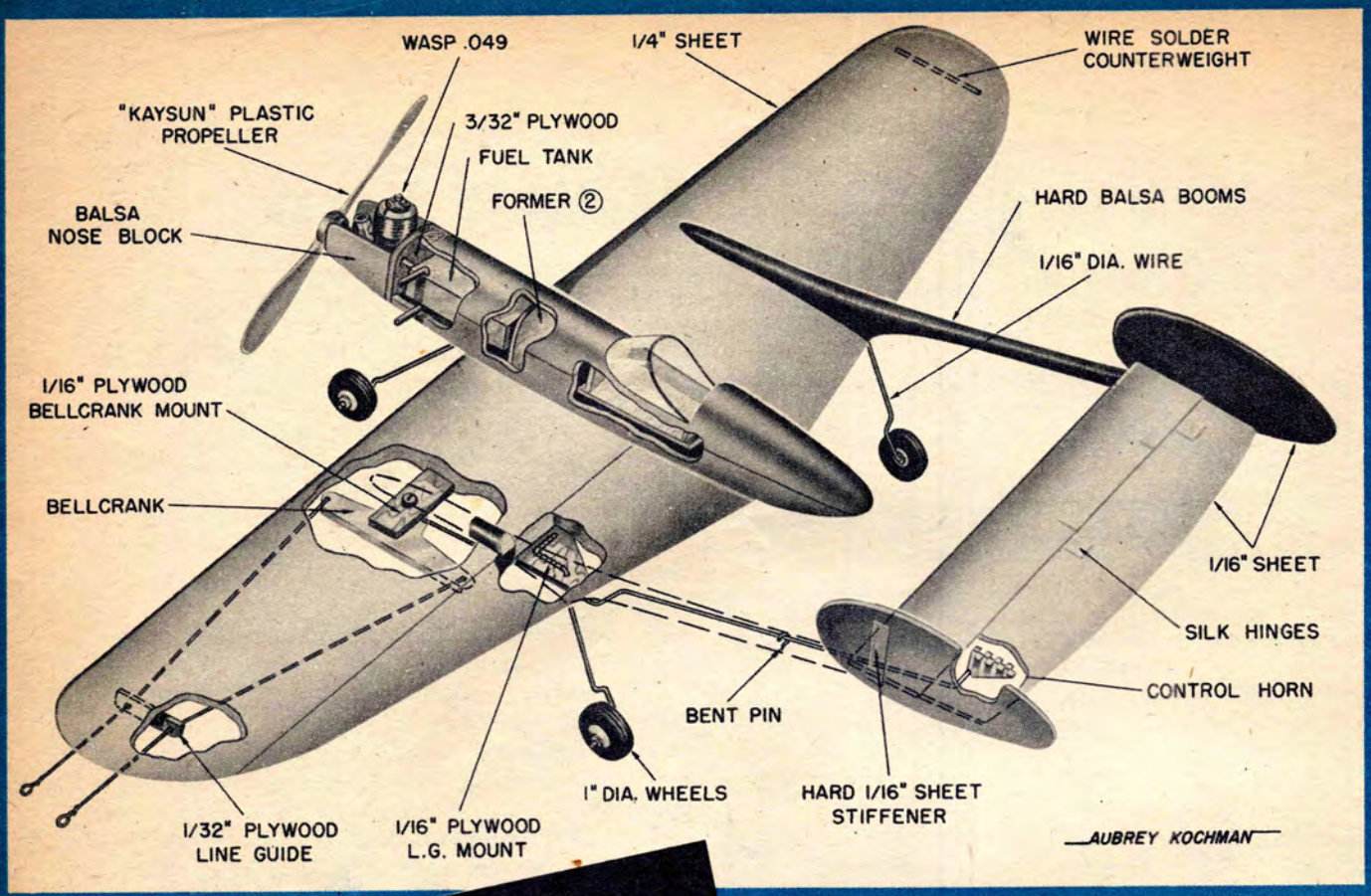
All very official. What it adds up to is recognition of Lt. Burton's efforts in dreaming up the Navy's carrier deck modelplane event—for one thing. Also, much of the success of the National Meet at the Dallas Naval Air Station and the fact that it went on after the Korean outbreak should be credited to this Navy pilot now serving a tour of duty in Washington, D. C. Lt. Burton is a veteran of 30 months' combat service in the Pacific for which he was awarded three DFC's, four Air Medals and two Presidential Unit Citations.

Presentation of the annual Brewer air youth education award was to be made at the NAA-Aero Club of Washington's dinner commemorating the Wright Brothers' first flight on December 16.

Writing of NAA (that's the National Aeronautic Association, you know) reminds us of the AMA (the Academy of Model Aeronautics, the Association's modeling division). That brings to mind a blast by a prominent Californian to activity leaders throughout the country concerning the shortcomings of the Academy. One contention was that the AMA wasn't doing enough to scare up backing for the Wakefield event. Sponsored trips should be forthcoming to the American team members each year, etc. . . . The sort of thing we have all dreamed of but which no one has been able to come up with yet. Well, the letter campaign drew some response, we understand. One well-known Eastern leader sort of set the anti-AMA, pro-Wakefield group back on its heels. More support for the Wakefield? Kill it, sez he! Listen:

"Regarding the Wakefield Contest, I have discussed the matter with quite a few of the local leaders and we are almost all of the opinion that the present Wakefield Contest is so out of date and uninteresting to the vast majority of the present-day model builders, that it does not warrant all the attention and expense that it is currently given by the Academy. We feel (*Continued on page* 84)

Payment of $5 is made for glossy photos (at least 4 x 5 in.) sent exclusively to AT and used. No negs!



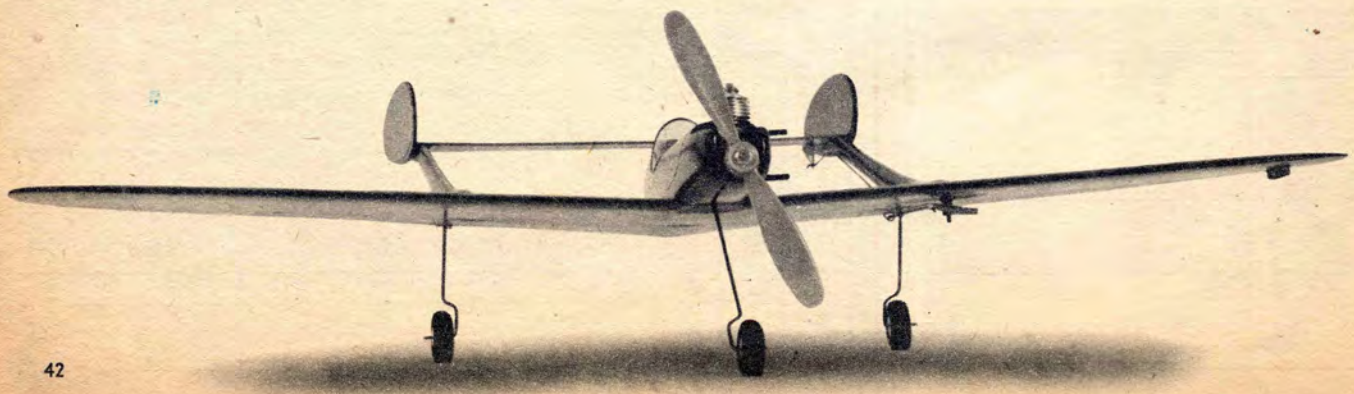
Li'l Lightning

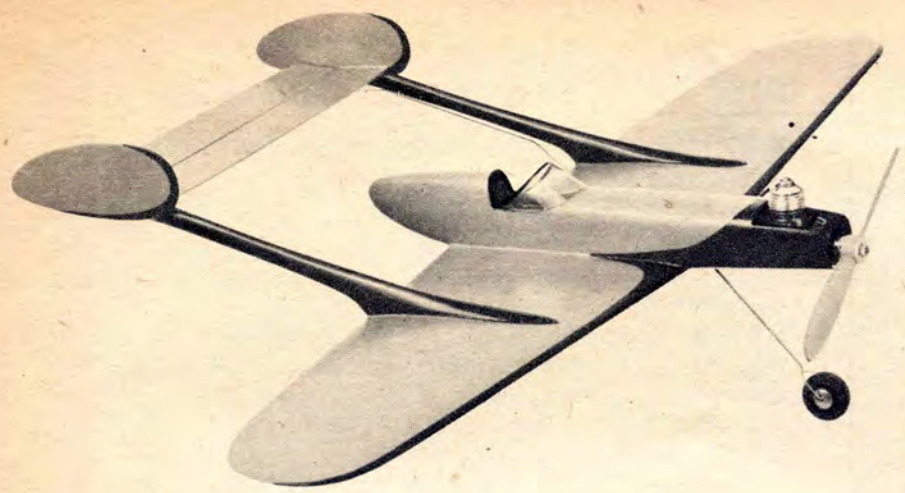
BY WALTON HUGHES

Anybody tell you a Half-A job can't stunt? This little twin-boom beauty will make them eat their words. Simplicity is the keynote

■ Li'l Lightning started out with an idea to build a good-looking sport plane with the least amount of effort. The idea succeeded quite well. This Half-A model has caused more comments in our neighborhood than any ship we've built and it took only one week-end to construct. This odd configuration has good flight characteristics for a sport plane. It will do wing-overs and inside loops with very little effort. A solid wing and fuselage provide a simple structure and a good surface on which to build a finish. No paper is used and wood filler can be applied all over.

Before building your Li'l Lightning, give careful consideration to selecting wood in order to control the balance point. This ship weighs six ounces and the engine weighs slightly more than one ounce, so the balance is controlled 85 percent by selection of balsa and weight of finish added. There is a tendency to be tail heavy due to the light engine, so select light weight wood as directed





fuselage front flat at slight angle to right to provide engine offset. Place end of fuselage against 3/32" plywood, mark outline with pencil. Saw outline to make firewall and mount engine, gluing nuts on back with several coats of glue.

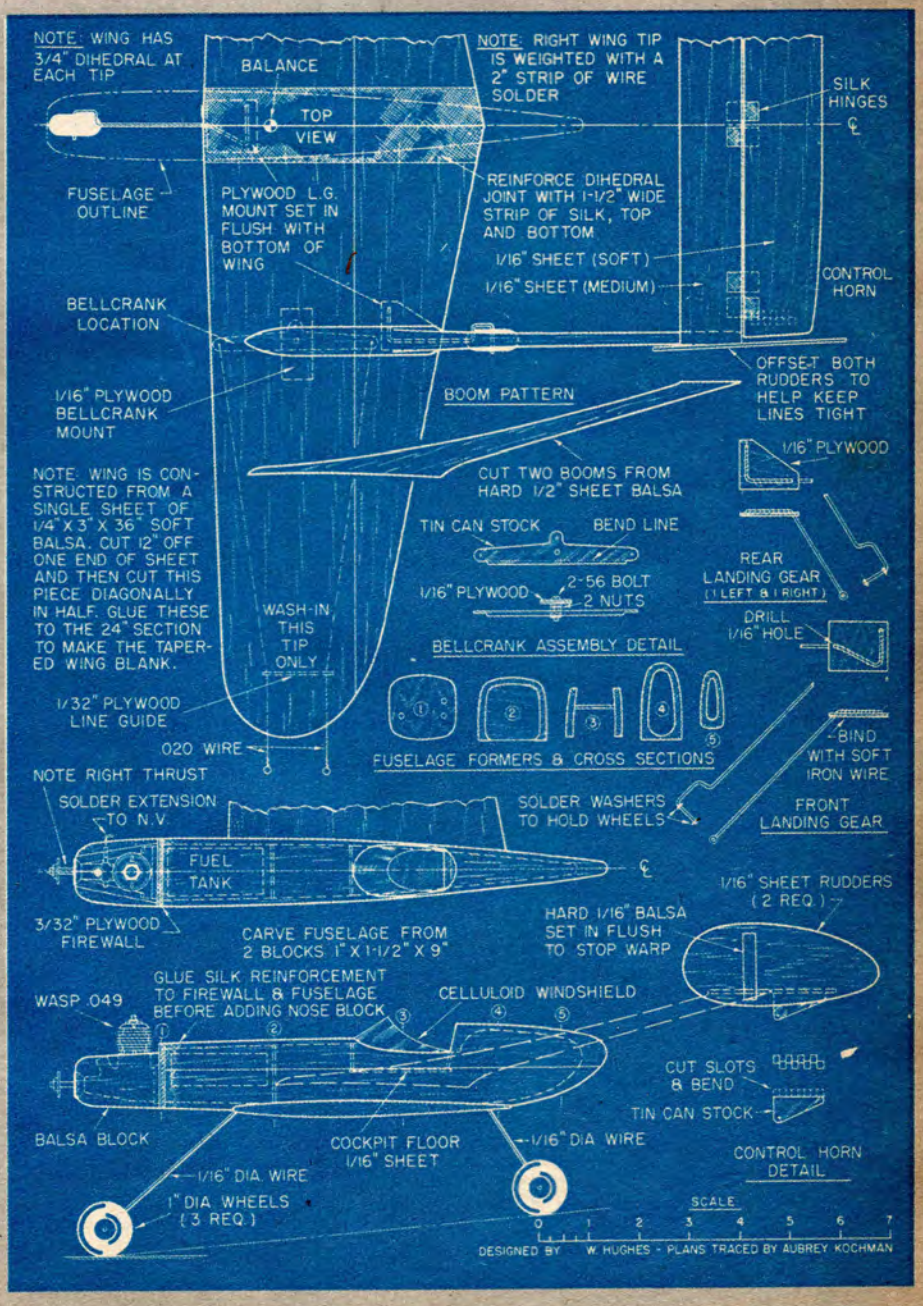
Drill small hole for fuel tank suction line, then glue firewall to fuselage front. When dry remove engine, sand firewall even with sides of fuselage. Glue silk approximately three inches square to front of firewall, trim around edges allowing ¾" for flaps, (*Continued on page* 83)

for each part and watch how much filler is left on the ship when finishing.

Wide sheets of wood are very expensive, hence the wing was cut from one piece of lightweight balsa. Proper weight may be determined by balancing sheet on a pencil twelve inches from one end. Six or seven pennies stacked on short end of board should bring it into balance. If more coins are required board is too heavy and lighter one should be selected. Cut outline according to plans and bevel to approximate airfoil with small plane, then sand to good finish. Cut wing in half along center line; bevel ends for ¾" dihedral; glue together holding tips with small blocks. Inboard wing (left hand) should be swept upward slightly at front to help ship hold lines tight during flight. Fit bell crank mount into wing so that plywood is flush.

Start fuselage by spot-gluing two balsa blocks together. Lay out plan view on top of blocks; carve or saw sides straight down. Lay out side view including cockpit cut-out—cut straight across. Cut off sharp corners with knife, finish shaping fuselage with coarse sandpaper on block of wood to cross sections shown. Break glue joint apart; hollow out top and bottom halves. Make rear section as light as possible to maintain balance.

Cut hole straight through for cockpit; install bulkhead and cockpit floor in lower half of fuselage. Fit gas tank, cut hole for vents. Wrap tank with twenty turns of #30 thread, cover with thin coat of glue. Glue tank into fuselage using small balsa blocks to hold against sides and bottom of fuselage. Fuselage halves are joined with glue. Sand

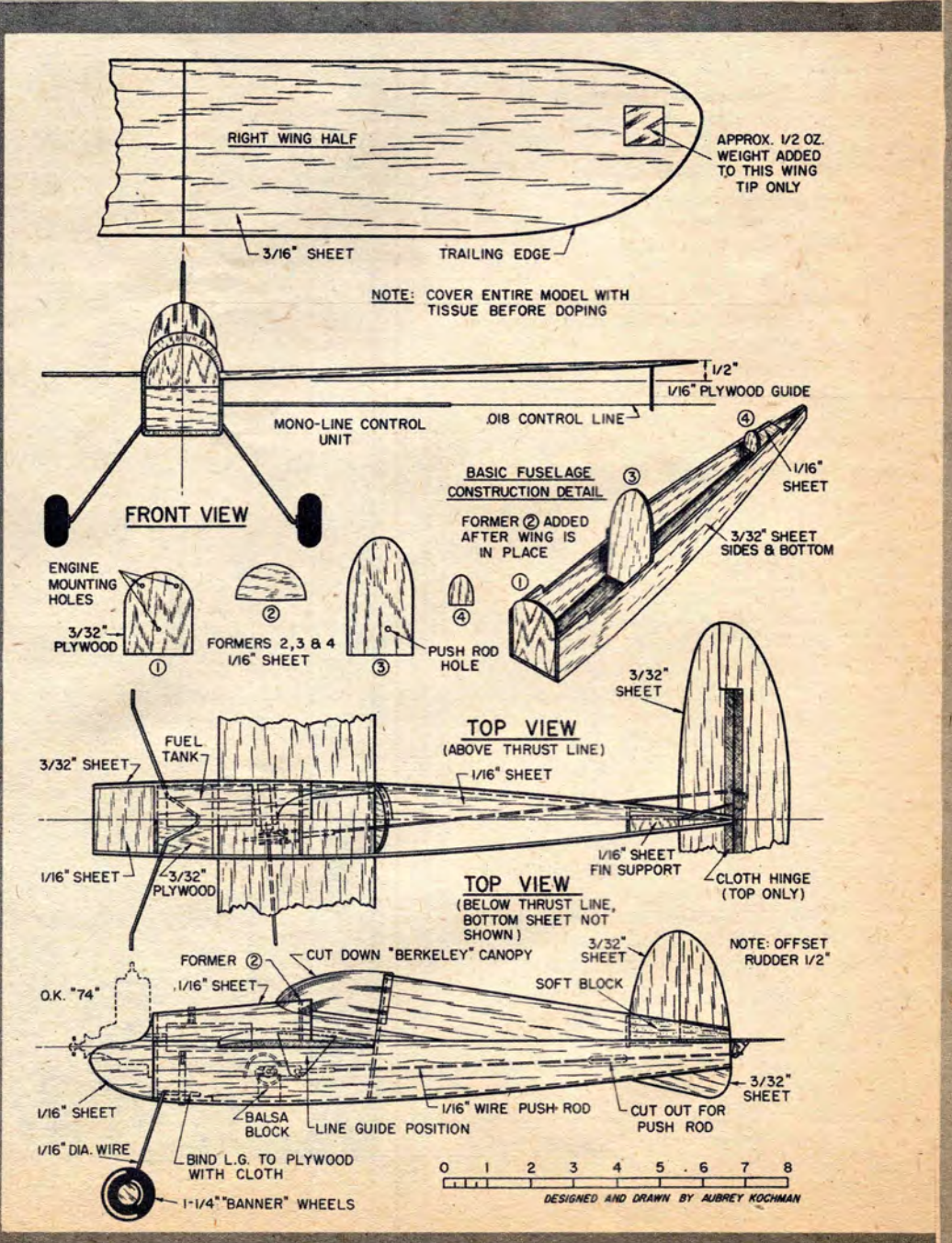


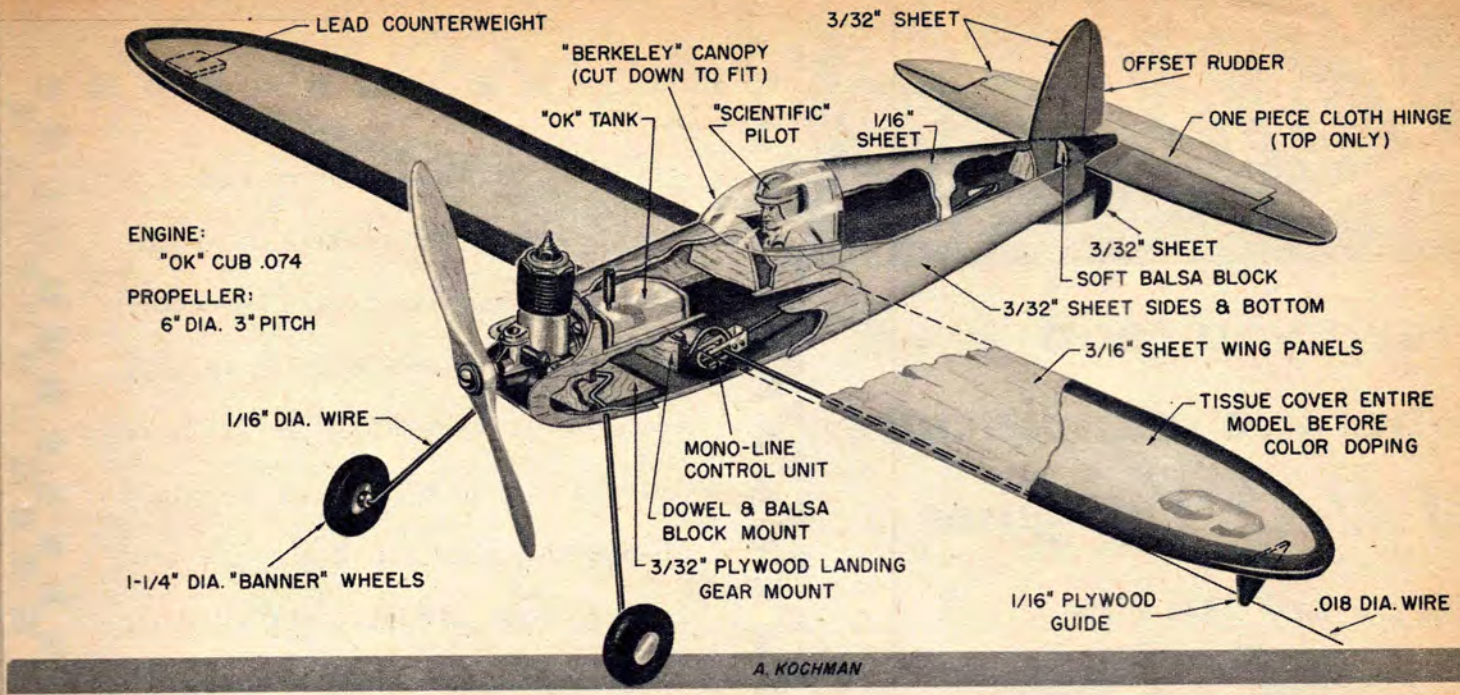
Uniliner

By AUBREY KOCHMAN

What? Only one line between the man and model? That's right—this sport racing stunter uses Stanzel's Mono-Line

■ High up on the list of pioneers in aeromodeling is Victor Stanzel and his associates of Schulenburg, Texas, whose new Mono-Line control system is the first major change from the usual bellcrank system in that it completely eliminates the bellcrank, uses a single line, features a positive acting return to neutral and complete control regardless of line slack. This last feature makes possible controllable flights—especially with small light models—regardless of wind conditions. Even if the model is blown in toward the center of the circle with the lines going slack, it remains under control and responds to any control handle movement.





A beginner who has never flown control-line before should have little difficulty in getting the hang of Mono-Line flying. However, those with more experience will find it as completely different as would a conventional airplane pilot when stepping into a helicopter for the first time. You just have to learn to do things differently to accomplish the same results. Up-is-up and down-is-down does not apply to Mono-Line flying for control is transmitted to the model by a sliding knob. Forward is *down* and back is *up*. Sliding the knob to neutral or releasing it completely returns the control surfaces to neutral.

Not wanting to go off the deep end in designing our first Mono-Line model, we used the Mono-Line Tuffy kit which introduced this new control system as a basis for our Uniliner. The model as presented here is simplicity itself, requires very little building time and yet is rugged enough to really take it.

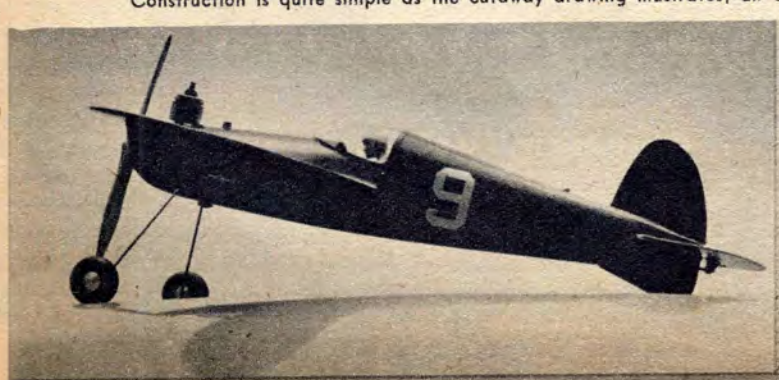
Start by building wings and tail surfaces. Wing is cut from medium soft $\frac{3}{16}$" sheet. Cut to outline shape, sand to proper airfoil. Cut in half, bevel edges, cement together at proper dihedral angle. Add a ½ ounce weight to outside tip. Tail surfaces are cut from $\frac{3}{32}$" quarter-grained balsa. Elevator hinge is single strip of cloth cemented to top side only.

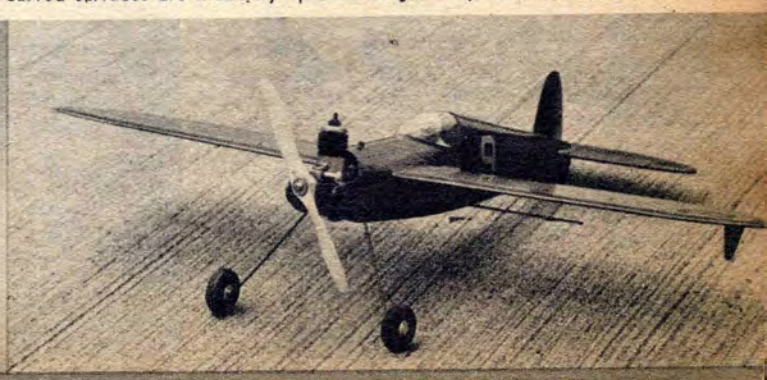
Fuselage is built as follows: Cut all formers, drill all necessary holes. Cut out side sheets from $\frac{3}{32}$" quarter-grained balsa, install formers and bottom sheeting (see Basic Fuselage Construction detail). Add $\frac{1}{16}$" sheet behind former #4. Install Mono-Line control unit, cementing shortened dowel to balsa block. Cement stabilizer, with control horn installed, in place and hook up pushrod. Follow instructions supplied with Stanzel's control unit.

Bend landing gear to shape, cloth-bind and cement to $\frac{3}{32}$" plywood. Cement this unit to inside of bottom sheeting and against plywood firewall. 1¼" Banner wheels were used because of their neat appearance. Cement wing in place. Install fuel tank, cut wing center section to allow snug installation. Turtle deck between formers #3 and #4 is pre-bent of $\frac{1}{16}$" soft straight-grained sheet balsa. Pre-bending sheet balsa (really quite simple) is accomplished by applying cement to one side of sheet and wetting other side. Cement fin in place. Note that it butts against former #4 and the previously installed $\frac{1}{16}$" sheet.

Add soft balsa blocks to either side of fin; carve to shape conforming to turtle deck. Cement rudder to fin, offsetting at least ½" to outside of circle. Former #2 is cemented on wing. Add $\frac{1}{16}$" sheet between former #1 and #2, pre-bending as you did with turtle deck. Install engine, using either 2-56 machine screws or small wood screws. Add engine cowl sides, bottom piece, and sub rudder. Control line guide is cut from $\frac{1}{16}$" plywood; install by cutting $\frac{1}{16}$" deep groove into wing, cementing (*Continued on page 70*)

Construction is quite simple as the cutaway drawing illustrates; all curved surfaces are made by "pre-bending"—a quick, simple process.





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Dark Red
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Orange Yellow
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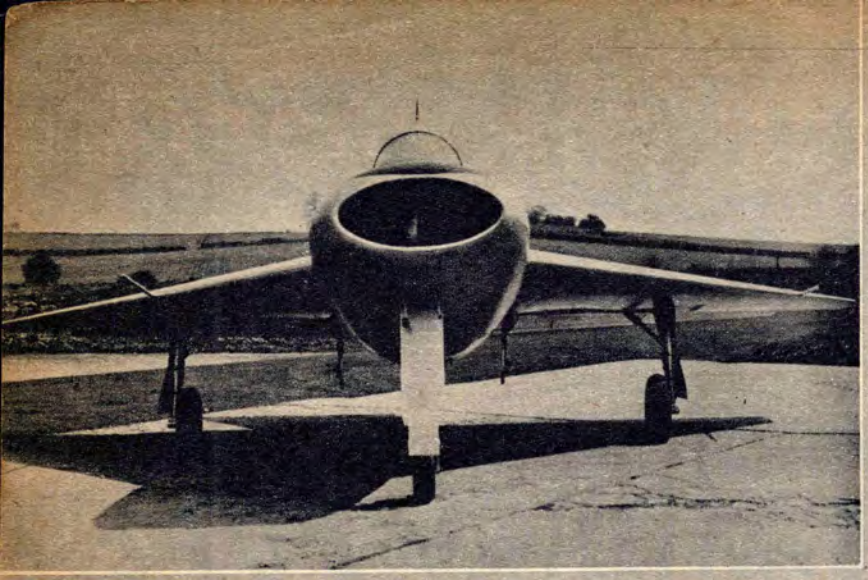


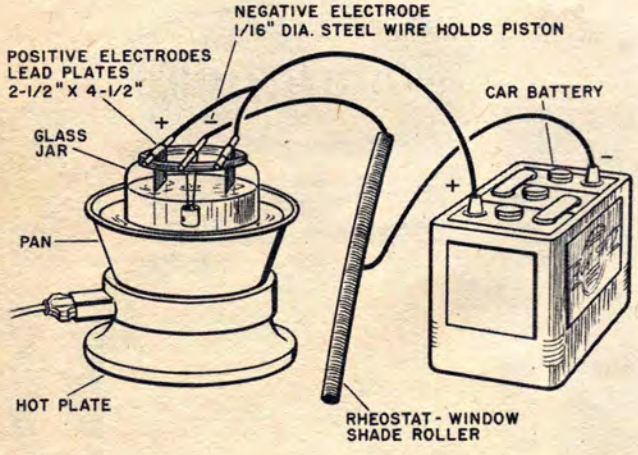
Boulton Paul P. 111

Drawing by BJÖRN KARLSTRÖM

■ Ever since Allied technical crews discovered several examples of German experiments in Delta wing aircraft, British and U.S. high-speed aircraft designers have been busy probing the possibilities of the triangular planform wing for supersonic aircraft.

The shape, which derives its name from the Greek letter Delta (Δ), is eminently suitable, because of its acute angle of sweep, for speed in the transonic and supersonic ranges. Besides displaying excellent stability characteristics at high speed, this type of wing is particularly adaptable for use with very thin airfoils because the triangular shape offers great structural rigidity. The first known examples, found in Germany after the war, were the work of the noted aerodynamist Dr. Alexander Lippisch—one was a Delta experimental glider, the DM.1, and the other a mock-up of a supersonic fighter, the P.12. Since then, the British have produced three experimental research aircraft of this configuration, the Avro 707, which was destroyed in a crash; an improved version, the Avro 707B, displayed at the British Aircraft Constructors show at Manchester; and the latest one, the Boulton Paul P.111, shown here. In the United States, the Consolidated Vultee Aircraft Corp. announced in February 1949 their Delta model, the XF-92.

Inasmuch as the Boulton Paul P.111 was a hush-hush project until it flew in October 1950, very little is known about it. Unlike is Avro predecessors, it has a very thin wing and is equipped with flaps which are not present on either the Avro or the XF-92. An unfavorable characteristic of the Delta wing is its high stalling speed and poor stability at lower speeds. Undoubtedly the flap on the P.111 is an attempt to correct this condition. A parachute brake in the tail of fuselage further reduces ground run in landing.



You Can Chrome—Plate Pistons

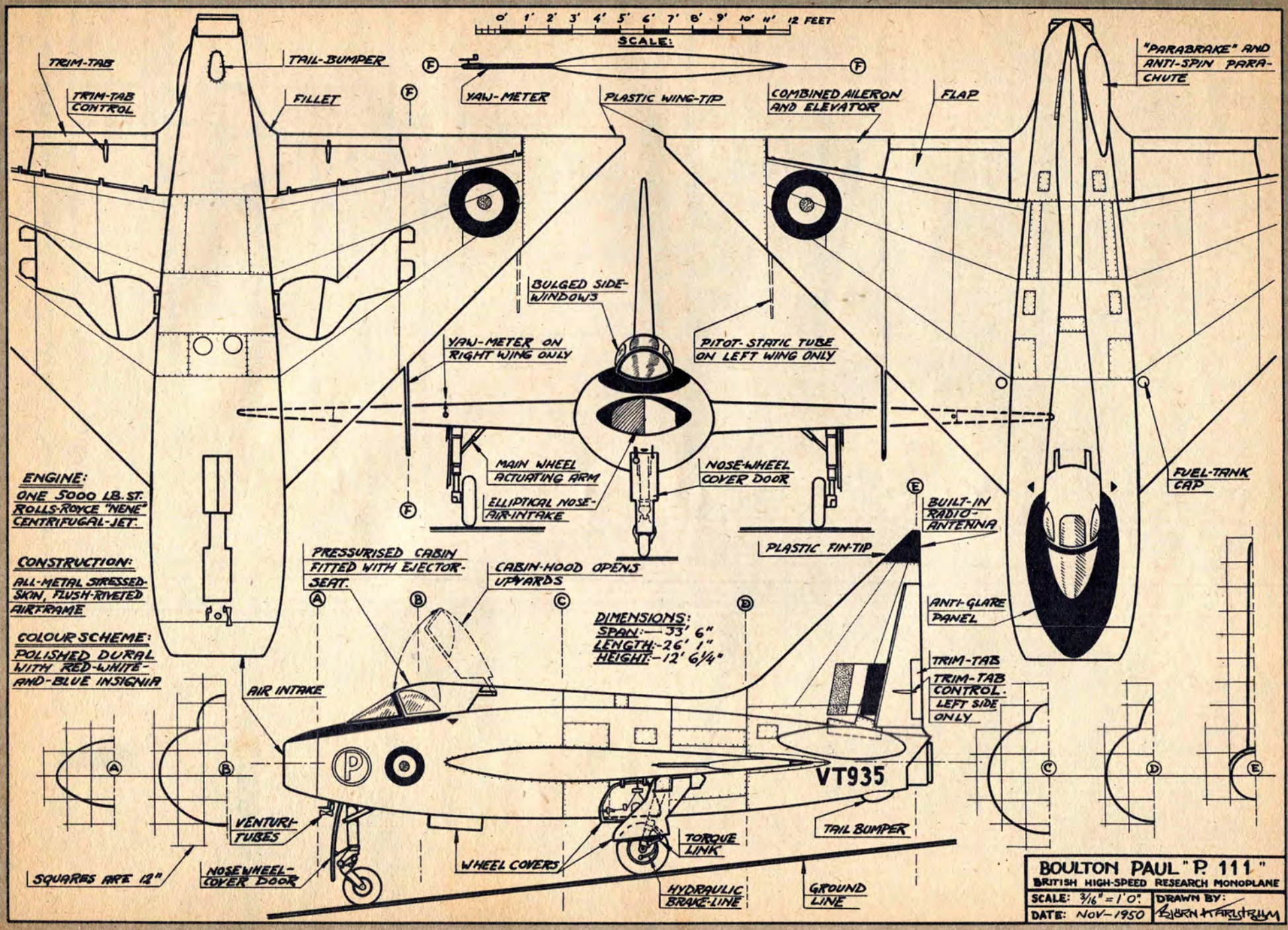
By C. O. WRIGHT

In the battle for more rpm's you can get out in front by utilizing "CO's" piston-plating method

■ The difference between a hot motor and a sick, hard-starting and missing one may be only wear on the piston that an ordinary micrometer could not measure. Too loose a fit on the piston not only decreases compression above the piston, it weakens the crankcase compression, lessens the by-pass charge and makes needle valve adjustments erratic. An easy repair may be made by chromium-plating the piston if it is a motor without rings.

Chromium is the ideal metal for piston plating as its coefficient of friction is low and it unites well with iron and steel. It will not come off. Chrome is not only as slick as banana peel, it is almost as hard as diamond. Chrome-plating is not expensive and not too difficult if you are willing to go at the job with sufficient deliberation and care and if you are willing to follow the simple directions given below without being too concerned as to the technical reasons why.

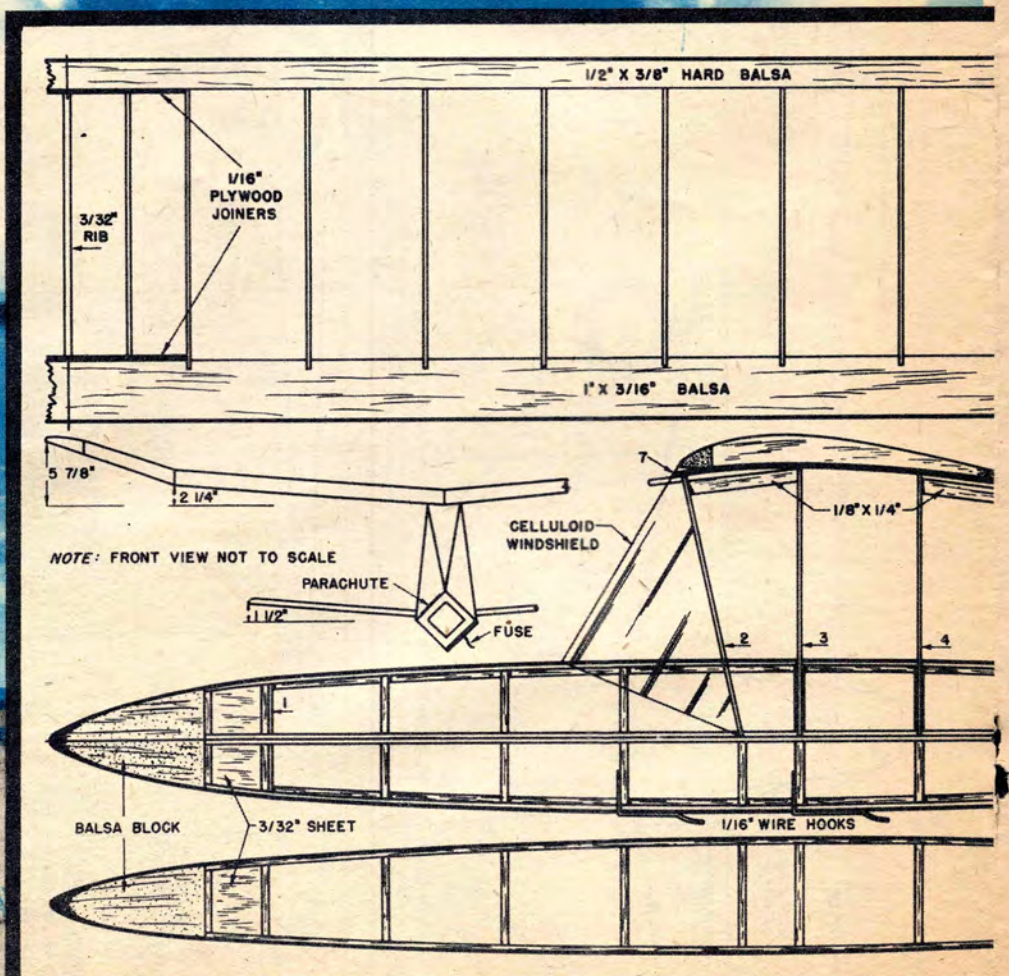
During the last eight years I have plated hundreds of pistons, usually with good success, that is, with motors coming out hotter than when new. If the motor is of the sleeve piston (*Continued on page* 70)


0' 1' 2' 3' 4' 5' 6' 7' 8' 9' 10' 11' 12 FEET
SCALE:
TRIM-TAB
TRIM-TAB CONTROL
TAIL-BUMPER
FILLET
YAW-METER
PLASTIC WING-TIP
COMBINED AILERON AND ELEVATOR
FLAP
"PARABRAKE" AND ANTI-SPIN PARA-CHUTE
BULGED SIDE-WINDOWS
YAW-METER ON RIGHT WING ONLY
PITOT-STATIC TUBE ON LEFT WING ONLY
MAIN WHEEL ACTUATING ARM
NOSE-WHEEL COVER DOOR
ELLIPTICAL NOSE-AIR-INTAKE
FUEL-TANK CAP
BUILT-IN RADIO-ANTENNA
PLASTIC FIN-TIP
ENGINE:
ONE 5000 LB. ST. ROLLS-ROYCE "NENE" CENTRIFUGAL-JET.
CONSTRUCTION:
ALL-METAL STRESSED-SKIN, FLUSH-RIVETED AIRFRAME
COLOUR SCHEME:
POLISHED DURAL WITH RED-WHITE-AND-BLUE INSIGNIA
PRESSURISED CABIN FITTED WITH EJECTOR-SEAT.
CABIN-HOOD OPENS UPWARDS
DIMENSIONS:
SPAN:— 33' 6"
LENGTH:-26' 1"
HEIGHT:-12' 6¼"
ANTI-GLARE PANEL
TRIM-TAB
TRIM-TAB CONTROL. LEFT SIDE ONLY
AIR INTAKE
VT935
VENTURI-TUBES
NOSE WHEEL-COVER DOOR
WHEEL COVERS
TORQUE LINK
TAIL BUMPER
HYDRAULIC BRAKE-LINE
GROUND LINE
SQUARES ARE 12"
BOULTON PAUL "P. 111"
BRITISH HIGH-SPEED RESEARCH MONOPLANE
SCALE: 3/16" = 1'0"
DRAWN BY: BJÖRN AHLSTRÖM
DATE: NOV-1950

Javelin Glider

By RAY JESSOP

One of England's top authorities on gliding brings you this high-performance, easily built craft



■ Here is a glider of unusual lines that will repay anybody who builds it with a contest-winning performance. It will give non-thermal flights of 3 minutes-plus from 300-ft. line every time and will take advantage of even the slightest trace of a thermal. Tow-line stability is excellent. It is about the minimum in size for maximum efficiency and is strong enough to stand the hardest knocks and stiffest breezes.

All materials are medium quality balsa unless otherwise stated. Build square fuselage to basic side view from $\frac{3}{32}$" sq. hard balsa. Former 1 is cut from $\frac{1}{16}$" sheet and cemented in position. Four $\frac{3}{32}$" sheet panels are cemented in first bay to form weight box. Nose block is then shaped from block balsa and glued in position.

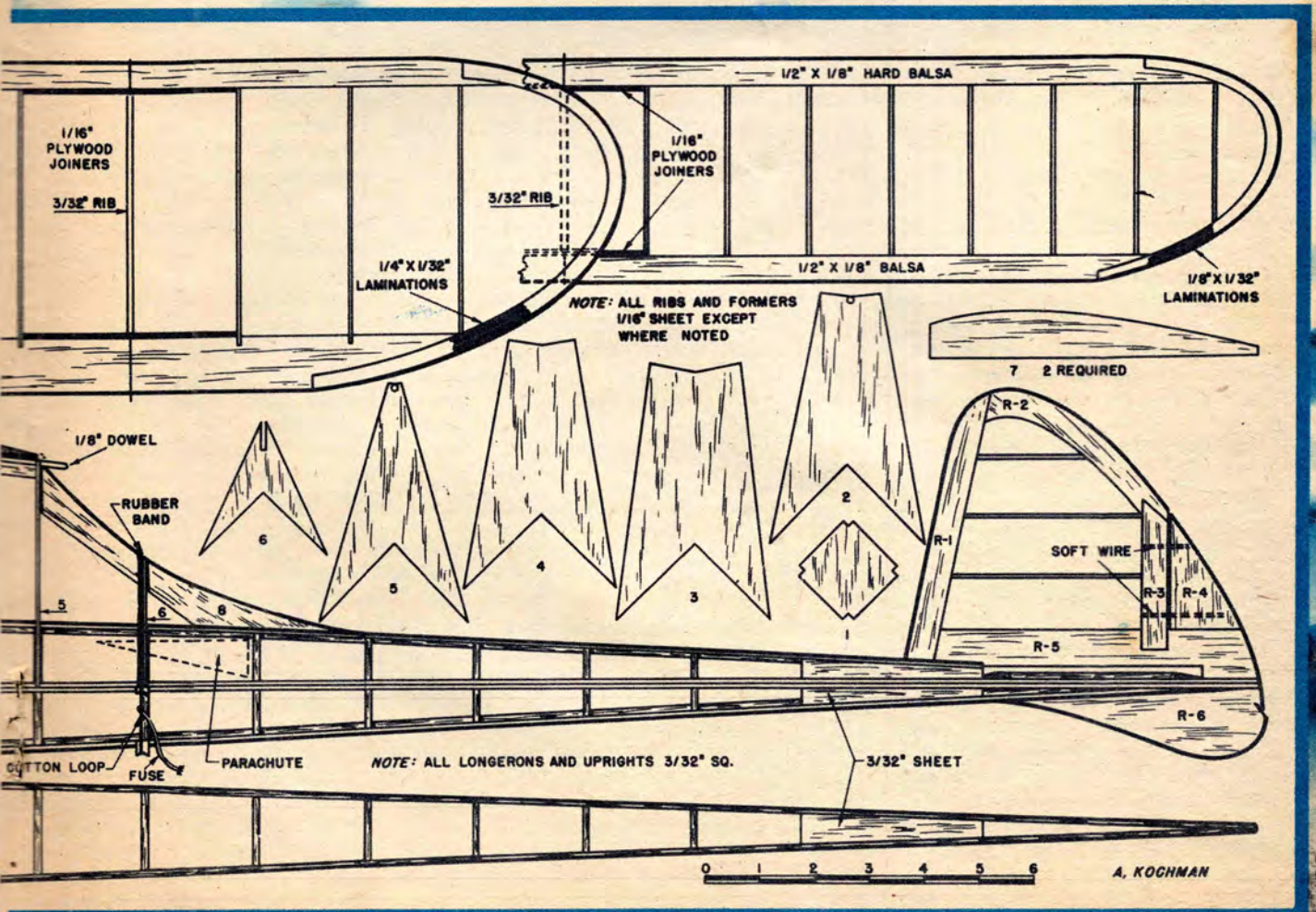
Formers 2, 3, 4, 5, 6, & 7 (2 of these) are cut from $\frac{1}{16}$" sheet, member 8 being cut from $\frac{3}{32}$" sheet. The diamond section of the basic fuselage is merely obtained by turning the square fuselage through 45 degrees. The cabin is next built in the following order: formers 5 & 6 are glued to basic fuselage as shown, followed by member 8 which is cemented in slot of former 6 and butted to former 5 and top longeron of fuselage at station 1. These are followed by formers 3 & 4. Wing platform 7 (2) is cemented to top of formers 3, 4 & 5. The top of former 2 is cemented to the front of wing platform and the bottom to station 1 on basic fuselage. Wing retaining dowels are then glued in position, being reinforced by two pieces of $\frac{1}{4}$" x $\frac{1}{8}$".

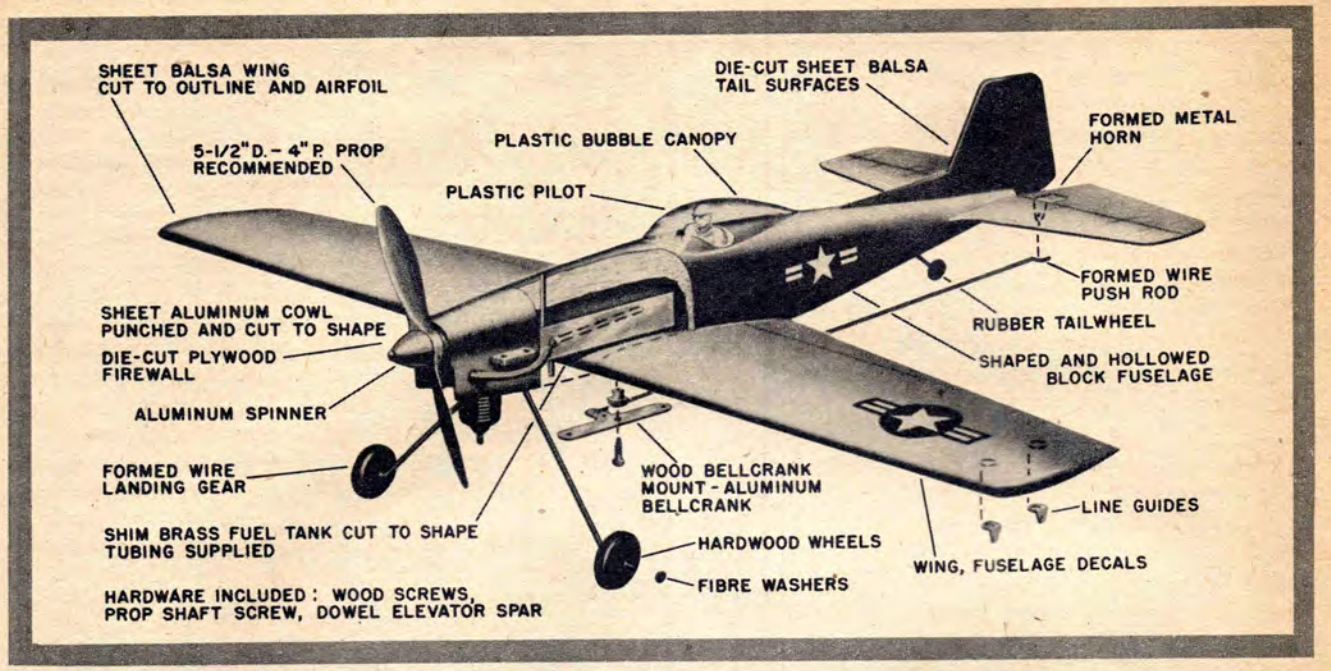
Top longeron of fuselage is cut away between station 3 and rear for stab platform. Tow hooks are bent from $\frac{1}{16}$" spring wire; these are bound and glued to bottom longeron. Fuselage is finally covered with lightweight tissue and given two coats of clear dope. Two $\frac{3}{32}$" sq. cabin supports are cemented in position; to these the celluloid cabin panels are cemented.

Cut fin members R1, R2, R3, R4, R5 & R6 from $\frac{3}{32}$" sheet. R1, R2, R3 & R5 are then cemented in their correct positions, with $\frac{3}{32}$" sq., forming the cross braces. The trim tab R4 is attached to this main fin with soft wire as shown. It is then covered with lightweight tissue and given one coat of clear dope. The main fin and sub fin R6 are then securely cemented to the fuselage in their appropriate positions.

For ribs of wings, first make an accurate plywood template of the airfoil section minus L.E. & T.E. Using this template, cut 24 ribs from $\frac{1}{16}$" sheet and 3 from $\frac{3}{32}$" sheet.

Tips may either be cut from $\frac{3}{16}$" hard sheet in the orthodox manner or laminated as follows: first cut a thick (*Continued on page* 68)





Little Mustang

Give a look at this rakish F-51-like semi-scaler by Scientific

■ Scientific Model Airplane Company of Newark, N. J., a pioneer kit manufacturer, has come out with a neat semi-scale job, one of the first new products from their brand-new factory. Our Model of the Month is the "Little Mustang," and though intended only as a semi-scale copy of the old reliable F-51, the resemblance is unmistakable.

When you open the box you will soon find that every part is cut, formed, shaped or stamped; thus Scientific's boast on the box, "All parts finished . . . no tools required," is a fair one. The plan is very simple and it can be, for with all parts finished there is no necessity for a detailed drawing. There are six progressive assembly drawings, plus a full-sized side view, a photo of the finished model and several detail sketches.

A quick check showed all parts present and in good condition, so the plan was studied carefully to learn the recommended assembly sequence. After digesting this, the balsa parts were sanded smooth and ready for use. The wing, a very nice shaping job, has trimmed tips that required only a little sanding to bring them to finished form. The manufacturer has used a neat trick that allows him to conserve a bit on the amount of wood normally wasted in shaping a wing to airfoil cross section. The finished wing has a chord of about 3⅞", but the ready-shaped portion is only 2⅞" wide. So you just fasten the latter in place under the fuselage, then add trailing edge finishing pieces of 1/16" thick stock (these are die-cut as are all the tail assembly pieces), and presto —a nice wide wing!

The Tru-Carved fuselage requires attention at the tail end to bring it to final shape, but is hollowed out

for tank and cockpit. The tail shaping can be done with sandpaper at the same time you are sanding the rest of the surface.

Step 3 in the assembly drawing covers fastening together the fuselage block, wing, and all tail parts. The tank was put in first. The plans call for a little wedge tank that fits neatly in the hollowed body block. Assembly of the tank (yes, the kit contains all parts for this) proved quite simple, as we took the precaution before assembly to tin the stamped brass sheet all around the edges on both sides. The sheet was then folded along the heavily indented creases; a hot iron and a touch of solder here and there along the already tinned edges finished this part of the tank.

After finishing the tank, a critical inspection showed it to be airtight. Still, just to be sure, a length of fuel tube was slipped over the feed tube, and with fingers over the filler and vent, the tank was immersed in a cup of water. A confident puff on the full tube and—holy smoke! Bubbles came from every joint! Well, not quite, but two pinholes not seen in the visual examination were revealed. A touch of the iron and all was well; but take our advice—make the blow test before you seal the tank into the fuselage. What fuel from a leaky tank will do to your airplane just shouldn't happen to anyone.

The last major sub-assembly operation is to attach the landing gear wire to the shaped plywood firewall; then you must decide what motor you wish to use. A close look at the plans, and at the partially formed aluminum cowl revealed that the model was designed around an "OK" engine, so we chose a Cub .049. Another close look revealed that while plans call for an inverted engine position, the firewall is marked for an upright (*Continued on page 73*)

"Spitfire" Jo SAYS...

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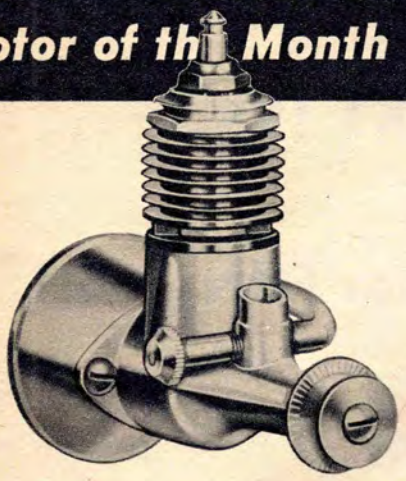
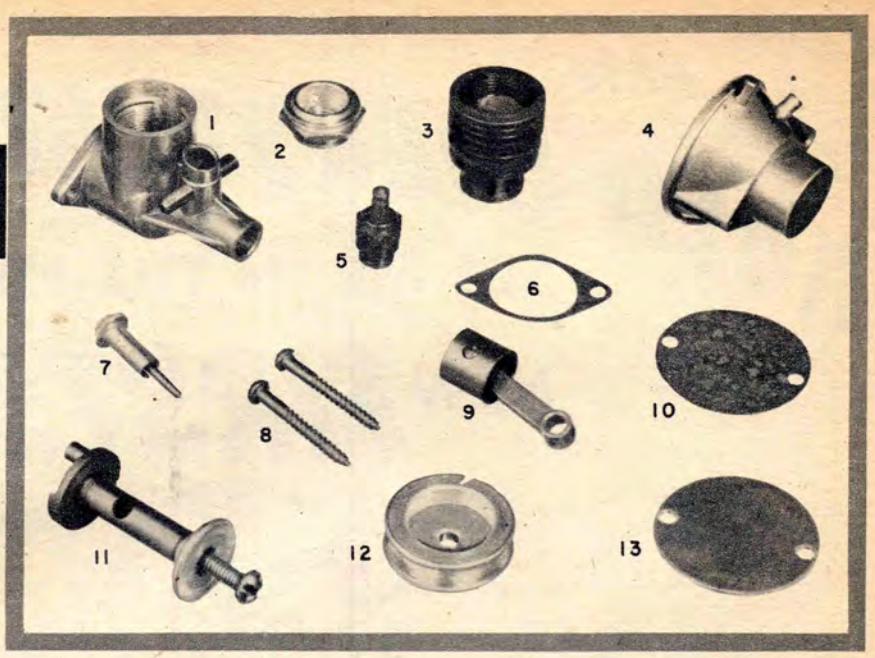
Motor of the Month





Cub .039

Everything about it is strictly "OK" says Herkimer of new motor

■ The Herkimer Tool and Model Works have added a new member to the small end of their Cub family, making the story of the Three Bears obsolete. This new engine, designed by Charles Brebeck, has the same appearance as the other Cubs except that beam mounting lugs are not used. A new feature has been added in the combination tank and motor mount.

Young flyers and beginners in model aviation should find the .039 Cub an ideal first engine. The cost includes engine, tank, propeller, and starting pulley. Small engines must be flipped very fast and this requires considerable practice, but the pulley gives a fast spin on the first attempt.

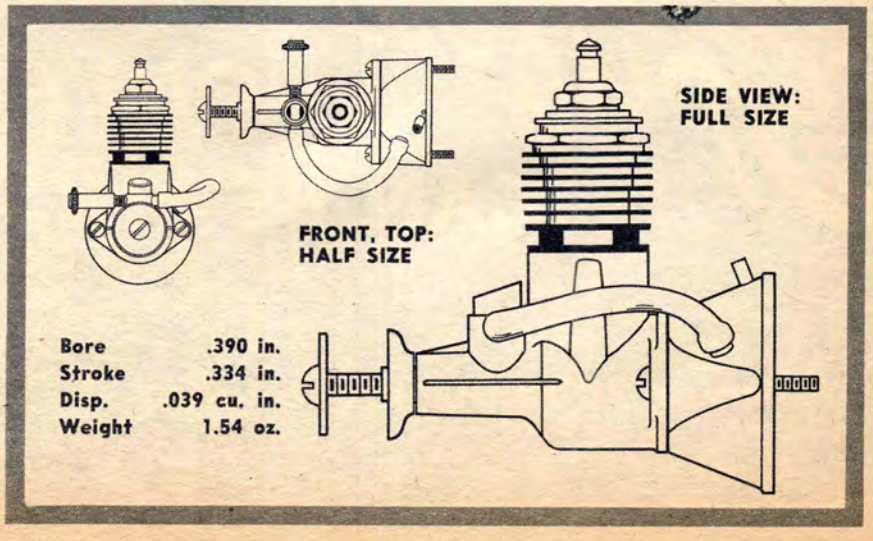
Although this new Cub sells for an exceptionally low price, it is built of good materials and should last a long time. Large bearing surfaces are designed into the engine as shown in the table of parts dimensions. The wrist pin is .109 diameter, the crank pin bearing .125 and the main bearing .218. These are in proportion to other Cubs, showing the new .039 should have their well-known long life. Another construction feature common to other Cubs is the drive washer and propeller attaching screw. In the event of a crack-up, damage is usually limited to a broken propeller or a bent propeller screw, which is easy to replace. The drive washer is pressed onto splines so it will not work loose and wear due to vibration.

Careful attention has been given to the tank design, making it suitable for control line flying as well as free flight. The suction line takes fuel from the outer rear section of the tank where the last drop of fuel is forced by centrifugal action during flight. The tank has a very clean streamlined appearance because all bosses and reinforcements are internal.

Engine tests were conducted using OK Glow Fuel, as recommended by the manufacturer, and the OK Glow Plug. The engine was broken in on the 5½" plastic propeller in the kit with good results. Speed started at 10,000 rpm and increased to 12,000 rpm in the first half hour. During this time it was noticed that loose motor mount screws would allow the engine to vibrate and reduce speed as much as 2,000 rpm. For this reason a solid mount should be provided in all installations.

During the break-in period, starting was found easy with a heavy prime in the exhaust (3 to 4 drops) and one drop in the intake. The engine appears to be rather wet, but kicks off quickly. After one hour of running the engine would continue to run on a lean needle valve setting, indicating it was thoroughly broken in, so the rpm tests were started.

Best results were obtained with the 5½" propeller in the kit. This gave a final speed of 12,000 rpm, which is quite high for such a small engine. Free flight ships would probably op- (*Continued on page* 64)



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1950 NATIONAL STUNT CHAMPION

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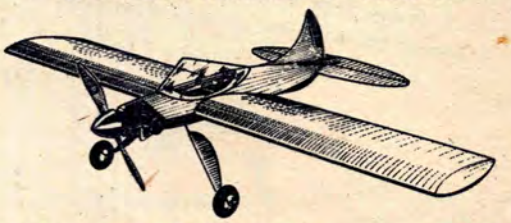
'48 INTERNATIONAL STUNT CHAMPION



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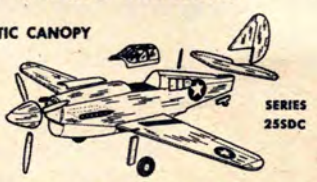

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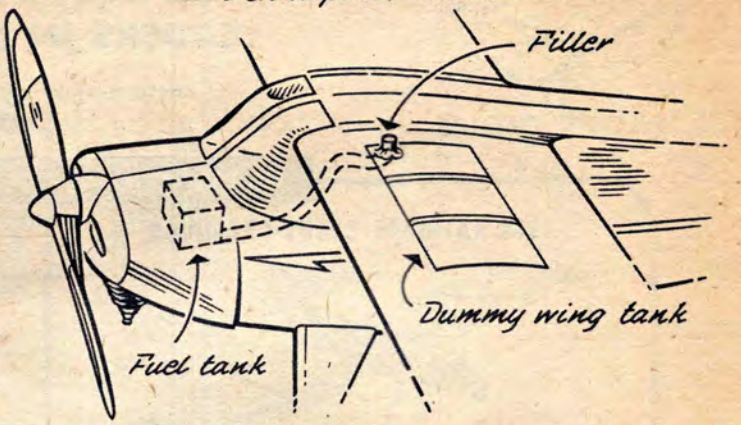
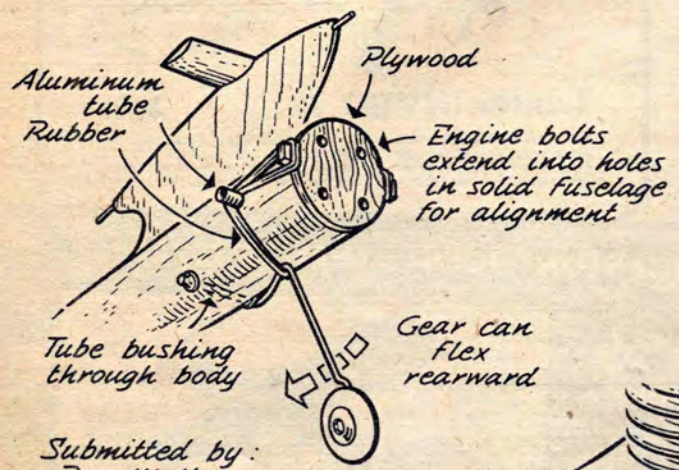
sketchbook

Have you developed something new in construction, control, or flying that might interest other modelers? Send a rough sketch—we'll redraw it and pay $2 for each one accepted. Due to their large number, we're sorry that we cannot acknowledge or return submissions.

Dummy wing tank adds realism says Buzzy Borden, Dennisport, Mass.

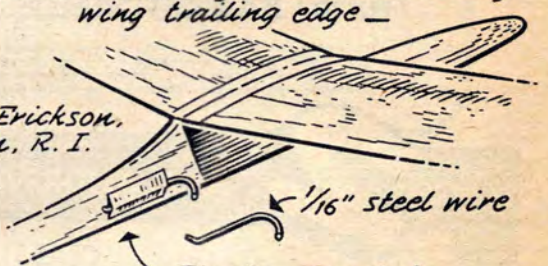


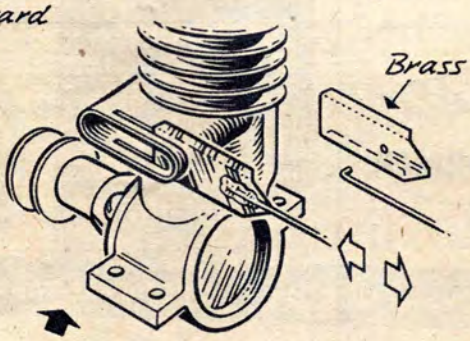


Submitted by: Don Wallace, Atascadero, Calif.

Wire hook allows powerful hand-launching without straining wing trailing edge—

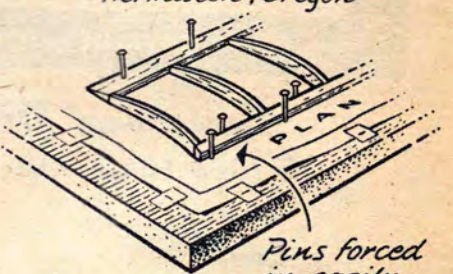
By E. R. Erickson, Cranston, R. I.



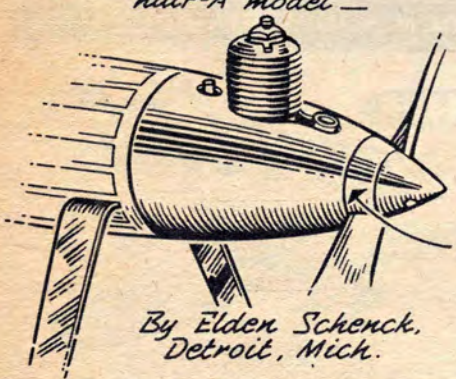


Engine control by blocking exhaust via third line or relay control — John Bishop, Middlesbrough, England

"Celotex" base as work board is idea of: Billy Dickson, Hermiston, Oregon

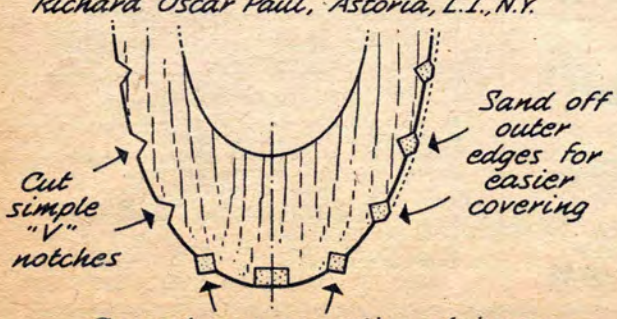


Large spinner makes complete nose cowl for half-A model—

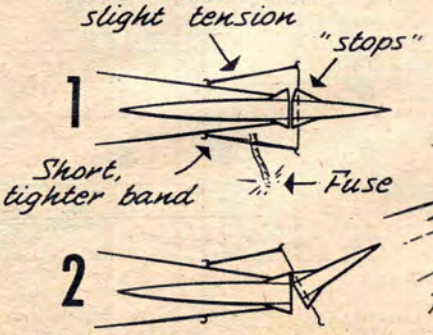


By Elden Schenck, Detroit, Mich.

Stringer idea speeds up assembly of streamliners, Richard Oscar Paul, Astoria, L.I., N.Y.



Rubber band under slight tension



Towline dethermalizer by Ted Falk, Meriden, Conn.

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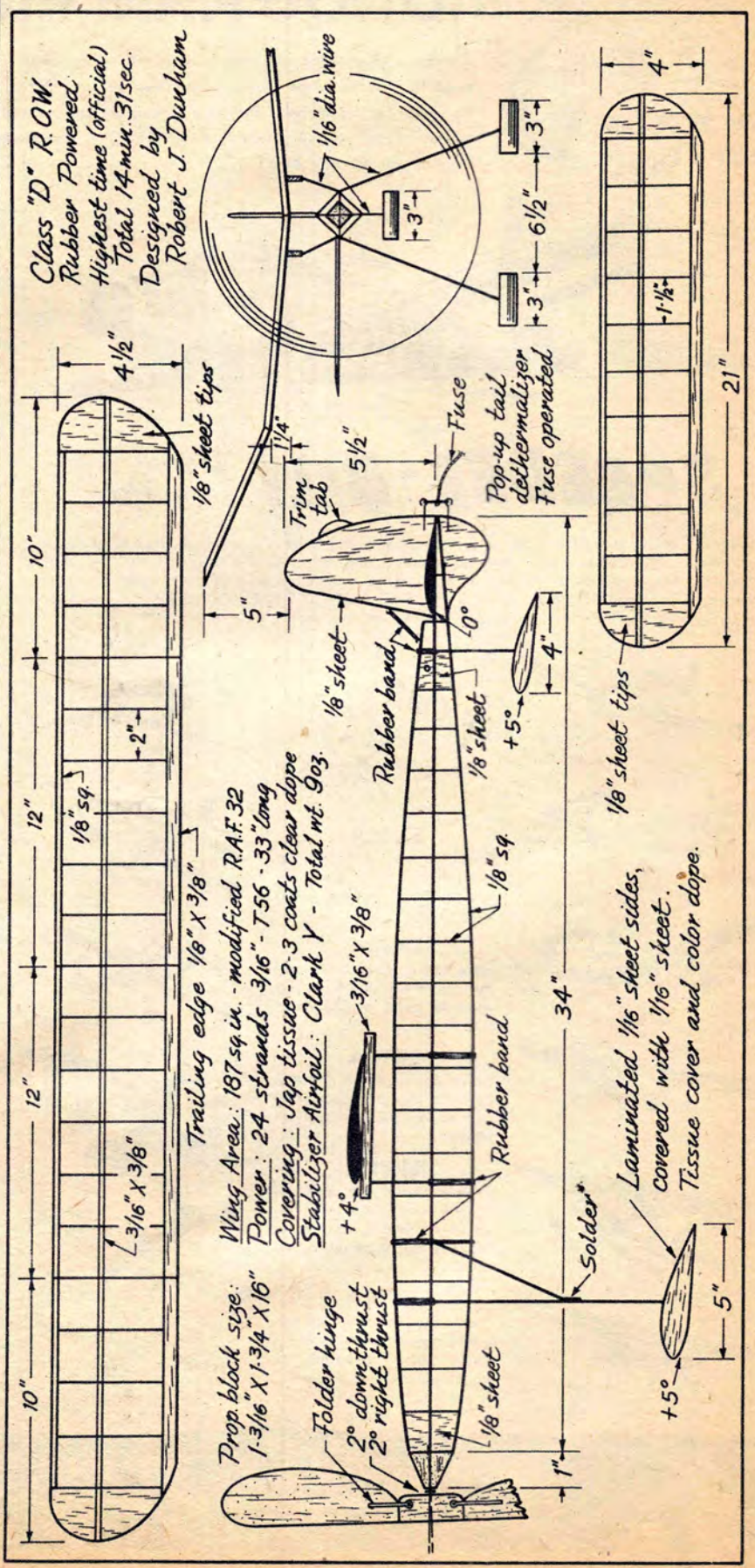
Record Review

Typical Tulsa diamond fuselage design is this rise-off-water stick national record holder by Robert J. Dunham. Fast climb on 850 turns is feature. His three flights were 1:16, 3:15 and 10 minutes (O. O. S.) Dunham is noted rubber designer, holds numerous records, won many meets.



Dispatcher

(*Continued from page* 34)

any changes at the terminal. Perhaps it shifts from clear to a squall line, with thunderstorms, moderate to heavy rain, ceiling and visibility reduced. The pilot wants to know those changes at the earliest moment. He may find it necessary to make flight changes on his own authority. Too, when he passes Denver, dispatch control passes to Kansas City. Joe's responsibility ceases at Longitude 39. Joe got Flight #94 to Denver. Now he can turn his attention to other problems.

Here's another. Flight #9, originating in Chicago, approaches Albuquerque on a fine winter day. Smooth sailing, until the left fuel injection pump on No. 1 engine of another Connie fails. For 35 minutes, the pilot flies toward Albuquerque with the ailing engine feathered. Thirty-three passengers aboard today, some bound for Phoenix, others for Los Angeles and San Francisco. Do we ground the plane? What becomes of the passengers? A score of problems descend upon someone's broad shoulders immediately. During the 35 minutes of the feathered flight, that someone must solve them. That's Joe.

Joe hits the telephone, starts dictating messages. Cancel Flight #9, because changing the pump is a four-hour job. Can't ask passengers to wait, if there's any other way to keep them moving westward. Notify stations where the flight would stop to assign passengers and mail to other planes. Ask Kansas City to notify following Flight #97 to stop at Albuquerque for 20 passengers. Because the stop makes #97 late, ask Albuquerque to put on dinners, ordinarily supplied at Phoenix. Order extra fuel for #97 at Albuquerque. Arrange a substitute crew for #97's eastbound trip tomorrow because she will be late in reaching L.A. Place some passengers aboard a following DC-3 flight. Keep everything moving smoothly, and when the feathered engine is ticking once more release the Connie, and assign a new flight number.

All done, and now the scene shifts to California and another day. Rain doesn't bother Joe. He knows the airliners can land safely in a downpour. But ice, fog and high winds are a different matter. At the moment a west-bound plane is three hours out of San Francisco. Weather isn't too good now, promises to be foul before the estimated time of arrival, clear by the time plane will land. You don't take chances, though. Joe gets off a message to the pilot, enjoying serene skies over Wyoming:

"SFO TER FCST 1730-1830 OP 20 OVC IBRKN RW-3W30 G35 MDT COLD FT XPCTD TO BE SAC AT 1800P. PIREPS MDT ICG ABV 119MSL VCNTY RBL 1400P B-26 FYI HAIL REPORTED ALA AT 530P"

As the pilot reads Joe's advice, he knows the front will have blown a hundred miles east to Sacramento by the time he's due in San Francisco, he may encounter moderate icing above 11,900 feet over Red Bluff, that hail will be falling at Alameda before his arrival. So he plans alternate landings at Fresno or Lancaster. He continues right along his plotted path. Whether he lands at San Francisco is not part of our story. Point is, Joe told him all he needed to know for a decision. (Actually, the flight landed at S.F.) More, Joe continued to keep the pilot informed about the weather he might expect all along the line.

Joe helped keep that flight on schedule. He's the first to explain that schedules aren't the most important part of airline operations. "Safety—that comes first," he emphasizes. That's exactly why Joe keeps a close watch on every flight in the air. If a plane's report at some check point is 20 minutes overdue, Joe swings into swift action. He clears all phone circuits. He asks adjoining company divisions and

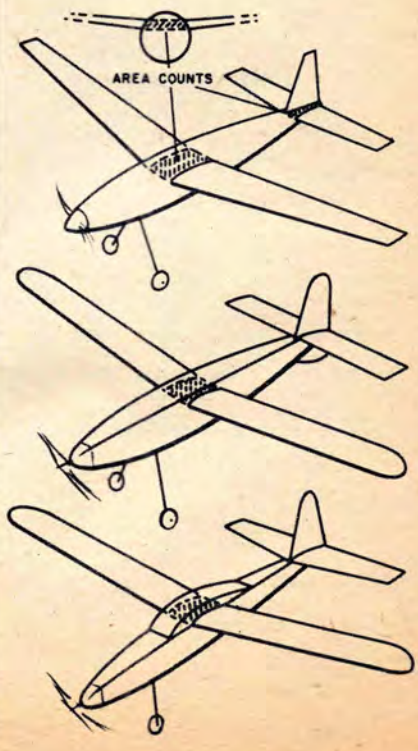
(*Continued on page* 63)

NEW RULES FOR WAKEFIELD

■ To line up with F.A.I. model specifications the (British) Society of Model Aeronautical Engineers has agreed to and confirmed certain changes in the Wakefield model rules for 1951. Briefly these are: the *combined* wing and tail area is to be between 263.5 and 294.5 sq. in.; minimum fuselage cross section is to be 10.075 sq. in. (irrespective of the length of the fuselage); and minimum total weight is to be 8.113 ounces (230 grams). The fractional figures are because the new proposals were made, and accepted, in metric units.

There are two points of major importance. There is now no restriction on the size of the tailplane, proportional to the wings. The stabilizer (tailplane) can be made as large as you like, provided that the combined area of the wing and stabilizer does not exceed 294.5 sq. in. But all areas are now defined as gross areas. That is to say, where the wings plug into the fuselage the imaginary center section bridging the two wing halves now counts as wing area—see below. The diagram shows how this affects typical layouts. Models where the wing sits on top of the fuselage are unaffected—all the wing area still counts.

Most all 1950 Wakefields will still conform to the new specifications. A few streamliners with a large center section (*Continued on page* 61)



(Continued from preceding page)
area may now come a bit over the 294.5 total maximum and will have to be readjusted accordingly. The slight increase in minimum weight is also a point to note, although it will be easy to add weight.

Main impression in Britain is that the streamlined and semi-streamlined models are now put at a disadvantage. With center section area counting, 1951 streamliners cannot afford to boost wing or tail area and may even have to decrease on one or the other. Most designers welcome the fact that they can use larger stabilizer areas if they wish, but the plug-in wing jobs can only do so at the expense of reducing wing area. Center section area counts for as much as 20 sq. in. on a lot of existing jobs.

The new fuselage cross-section rule means that you can build right down to a 10.075 sq. in. cross section, if you wish. Provided you have just that amount you can make the fuselage as long as you like. The Italians have already come out with one design with a five ft. fuselage to get an extra long motor—and long prop run.

Tackling some of the leading British Wakefield flyers on the subject of the new rules, most agree that they will be using slightly longer fuselages than usual and reducing cross section to the new figure. Few are prepared to abandon their existing designs, but intend modifying them accordingly. Most agree that they are going to use slightly larger stabilizers—around 35 percent of the wing area—even if this does mean reducing wing area to around 200 sq. in. on a shoulder-wing design.

Most popular layout of the moment is undoubtedly the diamond fuselage with built-in pylon. Here the wing is one-piece and sitting on top of the fuselage. Appropriate figures for the '51 models are likely to be 215 sq. in. for the wing and 79.5 sq. in. stabilizer. Fuselage length will grow a bit to around 40 in. overall, with the reduction in fuselage cross section possibly giving about the same airframe weight as '50. Most British designers are now aiming at a 50-50 airframe-rubber weight.

Double-Wakefield-winner Ellila's return-gear system is being used by some. Johnny Knight, 1950 British team member, is already flying a model incorporating this scheme and achieving reasonable, but not outstanding, still air times. Many of the conventional models are still capable of beating it.

Finland is definitely running the 1951 Wakefield event. That was confirmed at the same time the new rules were announced. And if the 1951 contest is to be flown under the same conditions—as almost certainly it will—the main lesson to be learned is that it will be flown in still, if not "dead" air.

Models which do well under thermal conditions are not necessarily good "still air models." Generally you can get best still air times with low power, very long prop runs and wide-open circles. The fast spiral-climb may get up there high, but it simply comes down again with no lift around. If the other fellow can get nearly as high and take twice as long in doing so, he is almost certainly going to beat you!

Three-four-minute flights would have won the Wakefield in 1950. Times have got to be a bit better for 1951. Ellila is almost certain to improve, not go back, on his winning times. A number of other countries have also learned their lesson and will be designing and building models for the conditions.

It seems that a model which will not do four minutes plus in "dead" air consistently will have no chance at all in the 1951 Wakefield. It would, in fact, be a waste of time sending that model at all. Nor are "still air" and "dead air" synonymous. Finnish conditions were "dead" and heavy with damp. Some models added as much as three ounces deadweight of water soaked into covering and structure. Most were quite unprepared for the conditions, and suffered accordingly.

Modelers prepared for damp conditions were using three or four light coats of a dope which was definitely water-resistant, but these were few in number. The French team came off well using one coat of nitrate dope followed by one coat of acetate dope. Anyone aiming at the 1951 Finals has got to bear this important point in mind.

Many prominent Wakefield flyers are of the opinion that the model to win the 1951 event has got to be a specialized job. Not the one used for the eliminating trials and flown in ordinary thermal conditions, but a lightweight version with a large motor and prop and power run approaching two and a half minutes. In that time it has got to climb to a good height in perfectly dead conditions—four hundred feet, at least—and then have a glide like a sailplane. Ellila's 1950 model was bettered by many on the glide, but no other model had his length and height of climb. Combine the one with the other and you have the 1951 winner. . . .?

—R. H. WARRING

WESTERN ROUND-UP

■ When the Western delegation left for the Plymouth Internats by train, confusion ran amuck. The policeman on duty at the rail station didn't want to let the fellows through with all their cars to unload their models. The pleading and cajoling that took place lasted long enough for a miniature traffic jam to pile up. For lack of something better to do the cop let the lead car in. Then the 2nd, 3rd, etc. When the fellows reached the train there was an immediate rush to get their suitcases, toolboxes and models on said train. At the same time a public relations representative for the Union Pacific was trying to get the "model" passengers to pose for pictures. The pictures were taken — but only after the models were on the train. When the train was ready for departure, it was discovered that model boxes took up and blocked the entire rear platform. Since the Interstate Commerce Commission frowns on such procedure, the train's departure was delayed while the boxes were unloaded and put in the salon car, the only available space. Imagine the look on the engineer's face when he learned the train was late because of some model airplanes. . . .

Somewhere between Los Angeles and Chicago, with time lying heavy on modelers' hands, paper gliders started flying; soon they were timing them. One flight brought on another. A baggage car had been taken on the train and this was soon discovered. The news quickly spread to the rest of the guys and a contest was started. When Johnny Brodbeck saw the enthusiasm which was apparent at the contest, he donated three engines as prizes. One of the entrants soon discovered a thermal, so times soared. Winning time in the First Annual Baggage Car Cross-Country Contest was a little over nine seconds. At the stop-over in Chicago amiable Tom Englemen took the fellows to the Black Hawk for a big meal. All the fellows talk about is the size of the check and the tip. When you ask them about the food they say, "Can you imagine a fifteen buck tip!"

While at the Internats they had a grand time. Although seriously handicapped by having to fly so many events in one day, they did manage to bring back more than their share of hardware. Wait till next year. . . .

The fellows in San Diego are wondering whether or not it is worth being National Champ. Les Bartlett is looking forward to busy school days so that he can get a rest. After two hectic weeks going to, competing and returning from the Nats, he had one short week to prepare his model for the Internats. No sooner had he returned from them than he had to pose for some pictures for the local paper, received a very fine traveling bag from the Downtown Exchange Club, appeared on a T.V. show and then had to pack again for a flying trip to Washington, D.C., to attend the National Exchange Club Convention. When he returned from Washington he got right to work for the All Western Open held in Los Angeles. It's getting so bad that he hasn't seen a movie for months.

The Fontana Airliners held their Second Annual Free Flight Meet at Fontana Airport. The day dawned sunny and hot with quite a few thermals. As every day dawns in California, the thermals were hot and plenty before eight o'clock, and soon test flights were dethermalizing all over the place. In the afternoon the wind came up, that famous L.A. smog drifted over and the thermals made themselves conspicuous by their absence. Good times were recorded, however, with the winning times in two events over twenty minutes.

This contest marked the first time your reporter was ever arrested for chasing a model. It seems that the contestants weren't supposed to cross the runway while retrieving models, even though they checked for planes landing and taking off before crossing. With the wind drifting models across the runway, you can imagine the fellows running across it. The contest director failed to notify the contestants of this. Consequently, while hot after a termal flight and almost across the runway, we were hailed down by a fellow in a jeep. Not knowing who he was and (*Continued on page 78*)

Dispatcher

(*Continued from page 59*)

CAA stations to try for contacts by radio. If no answering signal arrives, stating the plane's position, Joe really digs in.

He contacts all railroad stations along the line, to ask whether some agent has heard a plane's engine. Various agencies try all radio frequencies. Police departments, sheriffs, farmers are alerted. Forest Service spotters listen in, scan mountainsides. If the worst has happened and an accident is reported, Joe calls for help, plenty and fast, and as quickly as man can move, by plane or muleback, parties bearing food and medicines move toward the scene. . . .

As a watchdog of the airlines, Joe could use two mouths for speaking and four hands to wield pencils and telephones. Sometimes he works alone, again paired with another dispatcher, sometimes three labor together. It depends upon the station and volume of traffic. It's an exciting job, though, for upon his decisions depends the safety of thousands of passengers and many tons of express and mail.

Time was when Joe wasn't swift and sure in his decisions. He had to start slowly, and grow with the job.

CAA authorities say candidates for certification should attend the aircraft dispatcher CAA approved school. That's what Joe did. Among other things, he studied the CAA book on meteorology and U.S. Weather Bureau Bulletin "N," covering weather and how to cope with same. On recommendation of his school, CAA permitted Joe to take the dispatcher's examination five years ago. He read Weather Bureau symbols for weather, took an oral examination covering simple operations, analyzed "flight" weather on the basis of maps. And he took a comprehensive "multiple choice" written examination.

Sample: Circulation of wind in a high pressure area is clockwise toward the center, counter-clockwise toward the center, clockwise away from or counter-clockwise away from the center?

Sample: At 1800 EST on Mar. 3 SF weather bureau issued the following report: "Ceil. indef, 1500 o-cast, vis. 4 mi. variable, smoke, light rain, Bar press 1002 millibars, dew pt. 54 degrees, temp. 56 degrees, alt. set. 2959. . . ."

Choose one of four answers.

Laboriously, Joe calculated:

"071700E CG SPL W15V ⊕ 4R-K 002/56/54 ~ 6/959/CIG VRBL 12to18 BRKS in OVC. . . ."

Icing exists in what kind of clouds? Select one in four. Fog is retarded by which—drizzle, sun, rain or clouds?

More questions: Wind blows in a magnetic direction, a corrected magnetic direction or a true direction? To cover a section chart, east to west, you measure at the mid-point, destination, point of departure, or any point?

All these queries pointed toward one answer: Was Joe qualified to begin practicing getting airplanes from here to there while sitting in a comfortable office perhaps hundreds of miles from the planes carrying the nation's air loads? He began to find out a few weeks later after the mails brought him an important bit of paper saying he had gotten by the machines that graded his answers by a score of 88. He was 18 points up on the passing mark. That meant he was better than passable, and a chief dispatcher considered him worth trying out as an assistant.

Through continued study and daily experience, gradually Joe became an expert. In winter he knows intuitively the best flight altitudes to avoid icing, and so advises pilots. Quick calculations tell him when fuel may be low, and a dozen quick phone calls to other lines permit him to get his man down first out of a stack. Finally he glances at the local weather report: "Ceiling 500, visibility ½ mile."

Come on in, and sign out. Joe's job is done for this flight.

Cub .039

(*Continued from page* 54)

erate best on the 6/3 propeller, at 10,600 rpm. The manufacturer states that speeds up to 15,000 rpm can be obtained on small propellers and our top speed was 14,200 rpm on a 5/3 propeller. Smaller propellers were not tested, but it should be easy to reach the 15,000 mark.

Cub .039 Parts Illustrated

Part	Material	Size (in.)	Wt. (oz.)
1. Base	Alum. die casting	Alum. sheet	.29
Needle valve body	Brass	¼-32 thread	.07
2. Cylinder head	Alum.	.390 Bore	.28
3. Cylinder	Steel	1⅛ dia.	.27
4. Tank & Back plate	Alum. die casting	¼-32 thread	.11
5. Glow plug	Steel body	.010 thick	
6. Base gasket	Vellumoid	.....	.02
7. Needle valve	Alum. & steel	7/8-3	.04
8. Mounting screws	Steel	.390 dia. x 11/32 lg.	
9. Piston Connecting rod	Hardened steel	23/32 long .109 dia.	.12
Wrist pin		.012 thick	
10. Tank gasket	Aluminum	.218 shaft-	
11. Crankshaft	Steel	.125 crank	.16
Drive washer	Vellumoid	9/16 dia.	.03
Prop. Screw	Hardened steel	5-40 N.C.	
12. Starting pulley	Aluminum	thread	.03
		13/16 dia.	.09
13. Tank back cover	Steel Alum.	.033 thick	.03
		Total weight	1.54

Each Air Trails engine test report includes a list of rpm tests in the data. To be of use these figures must be interpreted in the proper way. High rpm readings do not necessarily make one engine better than another. Keep in mind that you're purchasing an engine for a specific job, not an all-purpose powerplant. A speed engine will give high readings on small propellers but may not pull on a larger propeller. If you intend to specialize in control line sport, stunt, scale or free flight, look at engine performance in the 9,000 to 12,000 rpm range. How large a propeller will this or that engine turn at 11,000 rpm? That tells the story in most cases. For example, the new .039 Cub will deliver very high rpm but is outstanding in its power at 11,000 to 12,000 rpm.

When comparing engine performance don't pick too close at the figures. Two engines of the same make can be purchased and operated on different propellers of the same pitch and diameter and produce rpm that vary as much as 500 rpm. If one engine turns 1,000 rpm faster than another it would be safe to say that it is more powerful, but comparing a small difference of 200 or 300 rpm in reports is a waste of time.

Cub .039 Engine Data

PERFORMANCE. Weight, less pully: 1.45 oz. Propeller—6/3 wide blade wood: 10,600 rpm; 5½/3 wide blade wood: 11,200 rpm; 5½" plastic prop in kit: 12,000 rpm; 5/3 narrow blade wood: 14,200 rpm. Fuel: OK Glow Fuel. Fuel level test: 4 in.

DESIGN DATA. Displacement: .039 cu. in. Class: Half-A. Stroke: .334. Bore: .390. Stroke bore ratio: .857. Compression ratio, head: 6.0. Compression ratio, base: 1.37. Port area—intake: .015 sq. in.; bypass: .011 sq. in.; exhaust: .045 sq. in. Ignition: O.K. Glow Plug.

CONSTRUCTION FEATURES. Bearings — crankshaft: aluminum; crankpin: aluminum; wrist pin: aluminum.

Brebeck patented porting as used in other Cubs.

"My best Russian jet fighter!"

Wire-less

(*Continued from page 39*)

widely copied, as are the straight-lined designs of Ray Matthews and others. This trend away from curved edges and elliptical tips and toward simpler functional planforms is plainly evident. With Gilliam's clean, big-tailed Civvy Boys among few exceptions, a trend seen in original designs favors the large, squarish job of purely functional layout, with huge stabilizer up to 40 percent, small sheet fin, flat firewall, single pegleg gear, and the necessary flight accessories attached mostly externally.

Carl Goldberg's excellent kit job, the Cumulus (Fig. C) is another exception. Here the complex, detailed structure so typical of Goldberg poses few problems because of the extent to which die-cutting of parts is carried. The Cumulus, with fully enclosed engine and elliptical planforms, contrasts sharply with run-of-the-mill original jobs. Yet any of the large area, lightly loaded ships that attain even moderate altitude are potential contest winners if properly trimmed.

Dick Korda typifies the trend to straight lines. He flew a pylon model of clean though simple design. Mahieu's Zeek seems a logical compromise; here is a neat model (Fig. D) with box fuselage of simple sheet structure, having a few curves thrown into the planforms for eye appeal without adding much to construction time. The Zeeks flew impressively too. We saw Mahieu's own Ohlsson-powered job swoop up to great height and float for several minutes under a cool overcast. Lew has experimented with both flat-bottomed and undercambered wing sections on this ship and says the preference is a toss-up.

Seen on many models, and now more than a novelty, are the hinged gravity trim tabs (Fig. E). Mounted at the polyhedral break on one wing panel, the tab droops, adds drag during the glide to tighten glide turns. Clay is added or

"—And besides, you're old enough to build your own!"

taken away from the tab as a trim adjustment.

There are many mystic practices in flight trim. Ehling is one of a number who favor tilting the stabilizer to turn the model (Fig. F). He prefers a straightaway climb under power even though airspeed may slow somewhat, while Sal Taibi, who knows a few things about trimming a ship too, prefers a spiral with good airspeed.

That free flight, generally, is in a rut must be something of a paradox, for while a first impression seems to indicate a monotonous sameness to it, a closer scrutiny reveals many conflicting notions in types, sizes, adjustment techniques and in construction. In the latter respect, the beliefs of Ted Enticknap, Northwestern expert, and Bob Lawrence, a sharp designer from Illinois, are interesting. Ted omits planking or sheet covering, preferring open framework with tissue covering. He says it is lighter, quicker and easier to build, can be hastily repaired. But Lawrence, a patternmaker by trade, goes all-out for sheet construction. His ships are built in jigs, in sections, with light framework inside covered with balsa skins which make for extremely smooth, perfectly warp-free surfaces. He can produce duplicate parts with machine-like precision.

Each of these designers enjoys the advantages of his preferred type of construction and both attain commendable flight performance as well. This unlimited latitude for originality which exists in the current free flight picture remains a healthy incentive. It must be remembered that what the modeler gets out of *building* the ship quite likely means as much to him (whether he is aware of it or not) as the model's success in the field.

Nowadays dethermalizers are seen in endless variation. Among many successful types are the pop-up stabilizer (and others which pop down), the trailing chute, pop-up wings, trailing spool, and wing spoilers. We recall watching a large gassie when, at considerable height, its chute dethermalizer popped out. Apparently the chute was a shade small, for the ensuing battle between model vs. chute was almost a draw. At times the model would appear to get near normal airspeed despite the chute, then the drag would make itself felt and the ship would wallow and sink slowly.

The familiar pop-up type is most popular, particularly on rubber and small to mid-sized gas models, and these were observed to operate very effectively. Modelers seem little concerned with keeping the ship clean aerodynamically when it comes to mounting dethermalizer and fuel cut-off gadgets. They are hung on, for the most part externally, at convenient places, with little effort extended toward insetting or reducing the size of tubes, rubber strands, wires, strings and dangling fuses.

Dethermalizer fuses are, for the most part, soft cotton cord, twisted or braided, and among these Venetian blind cord (coreless) is a favorite. The fuse burns through a restraining thread or tightly stretched rubber strand—a thread being preferred when small diameter fuses are used—to actuate the dethermalizer. In case of larger fuses, the end passes into a metal tube which snuffs out the fire after the fuse has served its purpose.

Some fuses are used without saltpeter or other treating, some are treated only at the point where the thread or rubber strand is to be burned. Sal Taibi asked us to pass along this method of preparing fuses: into quart container place 3 oz. saltpeter, add water to make pint and allow to stand for several days. Shake well, insert fuses and permit them to soak for several hours. Remove fuses and stretch them out to dry. Coreless Venetian blind cord of 3/16" dia. treated in this manner burns approximately five minutes per inch.

So long as wing area is adequate, the average model built expressly for payload flying suffers little handicap when entered in straight free flight contests. A critical problem of payload models is that of take-off. There is a relationship between wheel location and center of gravity affecting take-off characteristics of which many modelers are not aware. The farther ahead of the C. G. the wheels are located, the more erratic the take-off is apt to be (Fig. G). The many groundloops witnessed can be attributed to the trend in moving the C. G. rearward, toward the wing trailing edge, and leaving the gear in its customary position. Inability to take-off stymied many promising models.

Winds, waves and heavy swells put the damper on R. O. W. flying somewhat, bringing the luck element to the fore as the long factor in whether a model left the water safely or not. Some jobs broke free atop a swell nicely while others struggled in a trough to meet a wave head-on. Glow ignition is certainly a boon to seaplane flying!

Oddly, some of the small ships did very well—a Zipper A model made beautiful take-offs and a Half-A Cub-powered ship placed high among the winners. Three-float gears, some using the single float ahead, others a pair in front, were most common, but the twin-float arrangement is not out of the picture (Fig. H). Some of this type behaved quite well in the rough water, the lengthy floats seeming to span some of the waves and knife through others. Under normal conditions it appears best to mount floats as near the fuselage as possible, but in rough water this leads to fouled props and trouble.

Jasco designs, which have done so much to put towline flying on the map everywhere, led the show in this department. Others were typical of large rubber models, diamond fuselages being preferred. Some were outsize, spanning five and six feet. Generally, there were few gadgets observed in towline. Offset tow-hooks permit straight tow with normal circling adjustments; more complex devices to attain the same end seem unwarranted. Some contestants used kite tail for stability during the tow—this, of course, fell free with the towline.

More than in any other category, winds seemed to hamper the hand-launched outdoor gliders. The lighter ones, built indoor style, seemed to flutter helplessly. Ray Acord's success in the past with large gliders having tissue-covered cutouts in the wings, has brought this type of model to the front. There is wide use of gauze and plywood for reinforcing and hardwood in fuselages. V. C. Hahn, Ft. Worth, who felt a firm grasp to be of utmost importance, wore a kitchen-style rubber glove for hand launching.

Rubber models brought but few innovations. Simplicity and ease of construction remain a keynote here as elsewhere. An occasional model gets off the beaten track, such as Al Perkins' swept-wing, V-tail job, but most designs are the familiar diamonds and

boxes. Use of plasticized dope is becoming general to avoid brittleness and warping. Some used straight retardant rather than thinner in the dope, others added small quantities of castor oil. In damp weather these jobs looked pretty dismal, but the practice is nevertheless a wise one comes the sunshine.

Ed Lidgard flew his Wakefield ship which placed him on the American team two years in a row. He believes that stabilizer area restricted to one-third the wing area by Wakefield rules is adequate for all rubber jobs. The trend to large tail areas, however, makes the 33 percent stabilizer appear curiously small. Refinements in Lidgard's ship included a prop with block cut back from the front to allow flexing into higher pitch under maximum winding—this meant a long, steady climb without excess speed at the start—and three dowel positions at the rear motor anchor point for precise shifting of the center of gravity. Tom Coryell's Wakefield design (Fig. I), which placed on the '48 team, was at the meet fitted with a high aspect ratio wing of section with maximum depth about 60 percent back from the leading edge. These types are gaining in popularity, particularly abroad.

Under better flying conditions, 1950's radio control event would have been the best on record. Forty-eight models entered and it is significant that noteworthy flights were made by standard designs, such as McElwee's Radart, with standard radio apparatus right out of the box. The MacNabb license-free equipment was used by Foxworthy, who flew his now-familiar twin-fin job. This tail configuration seems so logical for radio flying that it is strange more designs do not incorporate it.

Radio control is in its heyday. There is energetic experimentation going on in many directions: Paul Johnson's use of HO model railroad engine for a simple self-neutralizing control; the continuing success of the lightweight whirling Rudevator; and the promising developments in proportional control by Trammel and others. One of the basic requirements of successful radio flying has been revealed as perfect flight trim. The contestant having the steady-flying ship which tends toward straight flight with moderate airspeed under power *and* in the glide, has the toughest hurdle behind him.

A great many modelers persist at control-line flying exclusively while others just as religiously follow free flight. It may be that the little Half-A engines will serve to introduce free flight flying to control boys and vice versa. In the first case, several of the neat prefab free flight kits, such as Veco's Dakota Bipe and Testor's pylon models, may help sell free flight painlessly to those who have never bothered with the launch-and-pray field. Conversely, Walker's little ready-made Firebaby may be a means of winning over free flighters to the Yo-Yo crowd.

Half-A free flight could go stale. A natural avenue for development is the flying-scale (or semi-scale) job. Such models in Half-A size can be easy to build, combining factors to make for realistic flying (Fig. J). Perhaps an easier project than a rubber-powered flying scale model, the Half-A free flight scale gassie would be light enough to withstand normal bumps without damage. It would be a mistake if forthcoming rules make no provision to encourage these models.

Hanging on as a separate event was rubber-powered flying scale. A hand-

ful of persevering, capable modelers keep this category alive—it seems a little too tough for widespread competition. There is little real progress to note. Berkeley's Interstate Cadet kit, for example, can still compete with the best. Flight performance, except for a few winners, is often disappointing. Light, authentically colored finishes were had by first covering with colored tissue, applying clear dope for tautness, then spraying one thinned coat of colored dope.

Free flight modeling is definitely expanding, including more and more inexperienced newcomers. The availability of low-cost engines that are easy to operate on glow ignition, and the simplicity of current design practices combine to make the experience successful for them. Youngsters for the first time now find gas modeling really within their means and abilities. A hazard to sustained growth is the high crack-up rate in the high-power, lightweight jobs that competition flying has nutured. Do we step backward to wing loading requirements with attendant processing headaches and attempt to tame the models? Or can model design evolve toward basic improvements that will reduce the toll?

Javelin

(*Continued from page* 51)

cardboard template to the inner contour of the tip. Next cut ¼" strips from 1/32" sheets, then one of these strips is bent round the template and held in position with a few dobs of cement. This is followed by another strip which is cemented to it and held in position until dry. Strips are then added in the same way until required width is obtained. The tip is then sanded to section and removed from template.

L. E. is made from ½" x ⅜" very hard balsa and sanded to section shown on airfoil. It is most important that the right section is obtained as the whole wing's efficiency depends on it.

T. E. is made from 1" x 3/16" hard balsa sanded to triangular section shown on airfoil. Slots 1/16" wide by ⅛" deep are then cut in it at rib stations shown.

Wing is built in two halves. Pin L.E. & T.E. in position, the T.E. being packed up 1/16" in the front so that a true airfoil is obtained. The tip and all ribs except those at dihedral stations are then cemented in position. When dry a V shaped slot is cut in L.E. & T.E. at outer dihedral station. L.E. & T.E. are then cracked and cemented at the correct dihedral angle. Next plywood dihedral braces 11 & 12 are added.

The 3/32" outer dihedral station rib is finally cemented in position. The other half is built in the same way and the two halves are at the correct dihedral angle, being reinforced by dihedral braces 9 & 10.

The wing is then covered with lightweight tissue and given one coat of clear dope.

L.E. & T.E. of stabilizer are made from ½" x ⅛" hard balsa which is sanded to given sections. Tips are then constructed in the same way as the wing. Ribs are then made from ⅛" x 1/16" strip. Stabilizer is assembled and set at dihedral angle shown, being braced by two dihedral braces 13. Cover with lightweight tissue and give one coat of clear dope.

Dethermalizer is the drag parachute type operated by slow-burning string fuse.

Parachute is a flat piece of lightweight tissue about 10 inches in diam. with 8 cotton cords about 8 inches long which are attached, equally spaced, to the edge of it. The free ends of the cords are then tied together with one

piece of cotton 8 inches long which is attached to the rear of the fuselage.

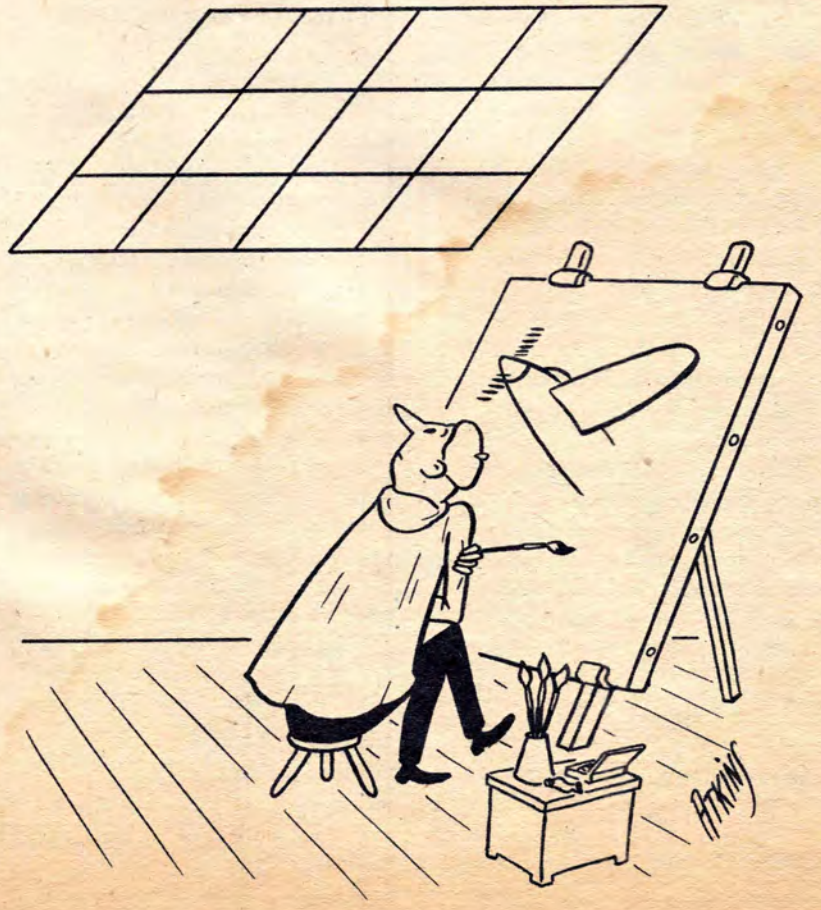
The string fuse is made by soaking white butcher's string of about 1/12" diam. in a saturated solution of saltpeter and water.

Two pieces of 3/32" sheet are cut as shown and cemented to the longerons on the bottom left-hand side as shown. These prevent the fuse from burning the fuselage.

The parachute is held in the position shown by a band which consists of a rubber band and a loop of cotton joined together. This band is looped round the fuselage at point indicated so that the looped cotton portion runs between the two balsa supports. A piece of string fuse of required length is hung with the end loosely inserted between this loop of cotton. Prior to launching, the fuse is lit and burns for a given time (according to its length) during flight until it reaches the cotton and burns through it. This breaks the band and releases the parachute which opens and brings the model out of any thermal in a steep dive.

Assemble the model with rubber bands holding wing and tailplane in position. Add lead shot through small hole in weight box until model balances at ⅓ chord from the leading edge of wing. The model should then be gently hand launched and should glide slowly for about 20 yards. If it does not do this it means that slight misalignment of the wing has occurred during construction and the wing should be adjusted by adding positive or negative incidence.

When a flat straight glide has been obtained the model should be tow launched on front hook from about 300-ft. line. The back hook should only be used on very still days. For thermal flying slight turn by use of trim tab may be used to advantage. For those who decide to build this model good luck, use a dethermalizer and bring home the hardware.



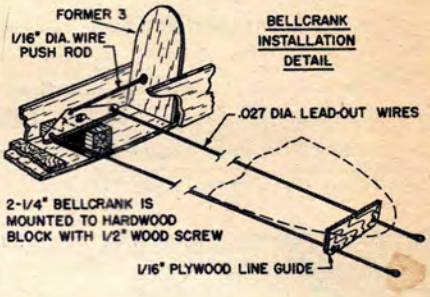
Uniliner

(*Continued from page* 45)

guide into groove. Apply glue liberally.

Cover entire model with tissue as it adds greatly to strength and rigidity of completed model. Choose a tissue close in color to that which you intend painting; in this way you need only apply two coats of colored dope to cover well. Add Scientific pilot's head, bubble canopy, Trim Film decorations, then apply coat of fuel proofer.

If you class yourself as a beginner,



balance model close to leading edge of wing (this prevents model from climbing too rapidly when it comes around into wind). For the more experienced flyer who intends looping, balance model from ½" to ¾" behind leading edge.

Do your initial testing on a calm day in order to get the feel of this new control system. Remember that although the Mono-Line control system eliminates loss of control, it does not eliminate "pilot error." That's strictly up to you.

Bill of Materials—Uniliner

2 sheets 3/32" x 3", fuselage and tail surfaces.
1 sheet 3/16" x 3", wing.
1 sheet 1/16" x 3", turtle deck, formers, etc.
3/32" plywood, firewall.
1/16" plywood, landing gear mount and control line guide
1/16" diameter music wire, landing gear.
1 pr. 1¼" wheels, pilot's head (optional) and a bubble canopy.

Chrome-Plate

(*Continued from page* 48)

type—without piston rings—and if the piston is of cast iron or steel, it is a candidate for chrome-plating. Aluminum and its alloys will not chrome-plate without an undercoat of nickel or other metal, so for the average modeler, aluminum, brass and metals other than iron and steel are out. Among the motors which respond well to the chromium treatment may be listed: Torpedo, Forster, Arden, Bantam, DeLong, OK including CO_2, Ohlsson, Cannon, old model Atwoods and Cyclones, Vivell, Madewell and the new baby motors.

The directions given in this article were discovered the hard way. Before the war, I had a few pistons plated with success by a commercial plater. With the war, commercial plating was restricted because of the scarce metals and I was out of luck. At the same time new motors left the market. In desperation, I worked for the secret formula. Some six months of intermittent experimentation at length led to success. First, I turned to the books on the subject which I secured from engineering libraries at three universities. I soon discovered that much of the material, the chemical formulas and electrical data were "too far over in the book" for my comprehension. However, I picked up enough essentials to get going and gathered a collection of volt and ammeters, thermometers and rheostats. I soon left these instruments behind as belonging to the scientific laboratory and not to a typical modeler's shop. I don't use any

of these instruments now except a crude rheostat, made from a spring taken from a common window-shade roller. All the other rheostats burned up anyway.

Yes, the first thing to know is that it takes a lot of amps to chrome-plate, though the voltage should only be from four and a half to six and the cells in your battery will largely determine that. A good hot automobile battery is ideal. Don't try to use dry cells, for they are not powerful enough. Be careful how you use the battery from the family bus. I got in Dutch with the Missus one day when I exhausted the battery in both my car and hers while I was trying to learn how. The process uses about as much juice as the starter—a slight exaggeration but not too far off. However, the average piston with the outfit throwing well will generally plate to the correct thickness in three to five minutes.

The first and constant thing to remember is *cleanliness!* After the outfit is set up and the bath is heating you should start cleaning the piston, and the cylinder too as it is needed for testing. *The piston must be free of all oil, even the natural oil from your skin.* The bath must be kept free from an oil scum on the surface. You can pick oil off the bath with a piece of dry balsa wood.

Most motors that still run but have lost their peak will need only a three-to five-minute plate; others may need up to fifteen minutes. For each minute in the bath, with the plate at the bright stage, something like .0005 is deposited, so the books say. I plate for three minutes, try the piston in the cleaned cylinder for a fit and if necessary plate for two minutes more, *et cetera.* If too much chromium is deposited, it may be easily removed with no damage to the piston by emersing the piston in concentrated hydrochloric acid, HCL (muriatic acid at your tinsmith). A *slightly* tight piston may be lapped in with jeweler's rouge, and you can bet that the cutting will be on the cylinder as the plate is harder than a file. Don't try to lap much as you may loosen the piston pin. Then, too, lapping with rouge is a slow process, like a cat eating a grindstone.

The skill, of course, is in getting the piston plated to the right snugness—not too too tight nor too loose. Deposit is greatest the first few minutes, and the rate drops sharply after the first fifteen minutes.

Crankshafts and other parts may be plated too, but it is not practical to build up much wear. With the entire shaft in the bath, it will tend to plate the shaft tapered, with the heavy plate at the prop end, because of the diffused magnetic field at the crank throw of the shaft. (For you electrical wizards, the magnetic field is also strongest at the top and bottom edges of the piston. There is a slight "snowdrift" at these points, but this is insignificant on a three- to ten-minute deposit.)

The equipment needed is modest. You will require, in addition to a well-charged standard automobile battery, the following inexpensive material: 1. One-quarter pound chromium trioxide crystals (CrO_3). This will cost about a dollar. 2. One shy teaspoon of sulphuric acid (H_2SO_4). 3. One and a half quarts of distilled water. 4. Two lead plates for the positive electrodes 4½"x2½". Convenient thickness. 5. Three bus bars about ¼" diameter 6" long made of convenient material. Old automobile gas tubing well polished with sandpaper will do. 6. Eight or ten feet of standard house wire. Number 10 or 12 will work well. 7. A steel spring from a discarded window roller shade for a crude rheostat. 8. Some spring clothes pins or simple snap clamps. 9. Six or seven inches of 1/16 steel wire for holding the piston. 10. A glass jar some six inches in diameter, quart and half capacity, with about a 4" opening. (I use a pound glass tobacco jar.) 11. A hot plate and galvanized pan with wooden grill in bottom for a double boiler for heating the solution during the plating process. (I use the bottom half of an old waffle iron.)

Now for rigging the outfit. Mix the one-fourth pound of CrO_3 crystals and the quart and a half of distilled water in the glass jar and add a shy teaspoon of sulphuric acid (H_2SO_4). Go easy on the acid! This is your plating solution and will plate hundreds of pistons. After using, cover carefully and save. The solution I am using now is over three years old. If you wish and if you can, you might purchase the solution all mixed from a commercial plater. He usually knows his business and often improves the bath and reclaims it with other ingredients which you need not know, for they are not practical with small batches of electrolite. Commercial platers usually zealously guard their "secrets," however, but if you have a friend in the business he can give you valuable tips.

Remember, the solution is a poison, so wash off your hands and provide ventilation for the fumes which rise in the plating process. The fumes will irritate the nose and throat and give you a "cold." Don't breathe them. They are not dangerous as

cyanide, but don't be careless with any kind of poison.

Place the jar in the double boiler with a wooden grill in the bottom and heat to a "coffee cup heat." Most books say 100 to 120 degrees Fahrenheit. Stir now and then with a glass rod and add distilled water to replace that which evaporates. The temperature is not too critical as the current is to be adjusted to the heat. In general, if the plating is too heavy, as described later, cut the heat down. If too light, raise the temperature of the bath. Use of the rheostat (window roller spring) accomplishes a similar result with variations of the electrical current.

Solder two of the bus bars together with a Y connection, using heavy stranded wire, for the outside bus bars that are to hold the lead plates for the positive connection. In most plating the positive electrode is the metal deposited. In chromium plating, the metal comes from the electrolite and the plus electrode is inert. The piston is suspended on wire at the center bus bar electrode which is negative. There should be spring tension in the wire holding the piston to insure a good electrical contact. *Remember, outside lead plates positive, inside piston negative.*

Either lead can be run through the window shade spring. Connect one end to the bus bar and the lead from the battery is placed in the coil at the proper location to give the necessary resistance for plating.

Above all, be sure the piston is clean. Commercial platers apparently use acid cleaning followed by a "bright dip" solution made of several acids. I started with bright dip but discarded it in favor of mechanical cleaning which worked better and was less trouble. First scrape and sand the carbon off the piston head. Then run the piston and the cylinder (it must be free of oil for testing) through three baths of white (unleaded) gasoline. While the piston "soaks" a minute or two in the last bath, wash your hands clean with soap to remove all oil. Dry the piston on a clean rag. Give the piston a slight sanding with very fine sandpaper (250 to 400) to remove oxidation. Place on the spring wire, dust the sanding off with a clean rag and insert in the bath on the negative bus bar.

Now let's judge the deposit. Start with too little rather than too much current. If plating is in process, bubbles will appear at the piston and fumes will rise. Lift the piston attached to the bus bar to observe the plating. Lower or raise the current with the spring rheostat until the bubbling is just above the intermittent stage. As you become expert, the bubbles will indicate the nature of the deposit. The ideal is a mirror polish plate such as you have on your car. Mildly frosty deposit is satisfactory also.

The stages of deposit, from nothing to too much, follow. The temperature of the bath and the strength of the electrical current determine the degree of deposit. Correct with the rheostat and if necessary change the heat. The stages of deposit are:

1. No deposit. (Too little current, too low heat.)
2. Milky. (Exactly like milk on the piston. Raise current or temperature.)
3. Bright. (This is ideal.)
4. Frosty. (This is O. K. Cut current on next one.)
5. Treeing. (Like hoar frost. Lower both heat and current and if absolutely necessary dilute electrolite with distilled water.)
6. Burning. (Brown and black. Ease up on everything, and how!)

Finally, here are some suggestions. On many motors, it may be best to plate the top third of the piston heavier than the bottom part. Lower the piston some $\frac{3}{8}$ inches in the bath and plate for say three minutes and then submerge the whole piston for the complete plating. Some motors have slightly warped piston skirts and it is unwise to plate these as heavily as the top of the piston.

If you plate for an extended period, rotate the piston every few minutes to insure uniform deposit. On short plates have the piston pin parallel to the bus bars so as to plate slightly heavier at the sides where wear is greatest due to piston slap.

If after one plating and after piston is used, it may be necessary to re-plate, "cut" the old plate slightly with HCL acid the same as for removing deposits.

Pistons may be safely plated without removing rods and piston pins if all oil is removed from the assembly.

After plating, clean up the outfit. Remove the lead plates and wash everything. Before using again, clean the lead plates with a wire brush and polish the bus bars and all connections. All electrical contacts must be clean and tight.

Plating is fun and it really works. But remember, take it easy. The process is not for the mad-rushing type, and remember that cleanliness is next to Godliness when you chrome-plate.

What's Your Dish?

SPEED? Stunt? Scale? Free Flight Gas? Big jobs? Half-A's? Rubber-powered craft? Brother, we've got 'em all in the brand-new, big 98-page Air Trails Model Annual for 1951. This is the famous model annual that has been issued in '43, '44 and '46 and each time has been a sellout! Here's a great big hint to every modeler who enjoys fine reading, who likes to build better models, who recognizes the value of expert guidance—get your copy while they're hot. You can get the new Annual, the "AT" Annual for 1951, at the same newsstand where you buy Air Trails each month. Print order was limited; after the newsstand copies go there'll be no more available of this issue. The price is a low 35c for the biggest bargain in air-modeling. Canadian readers cough up 40c; but they'll agree the material, the plans, the articles, the charts, graphs, drawings and photographs are easily worth 10 times that sum! This is the last call to dinner—don't miss this dish! Ask for "Air Trails Model Annual."

Here are but a few of the many fine features of the AT Model Annual for 1951. These annuals quickly become a collector's item so hustle down to the newsstand Get Yours Today!

Mustang

(*Continued from page* 52)

Cub installation. Since the mounting screws come close to the edge of the wood, the three new screw locations were spotted with a #55 twist drill to avoid splitting the wood.

The landing gear "V" wire fits into a slot already cut in the firewall, and is held by clamping the engine over it. This fastening would be adequate if the engine were mounted upright. For inverted use, a few holes were therefore drilled on each side of the gear V and it was bound in place with fine copper wire. A copious dose of cement completed the job.

The Cub needle valve (and those of practically all other engines as well) is assembled so that the fuel feed line must be attached to the engine from the right-hand side, looking at the engine from the front, with it in an upright position. Thus it was found necessary to reverse the needle valve. If you perform this operation on your own engine, proceed thusly: remove the needle valve, place a piece of wood against the threaded end of the fuel tube and give a few taps to loosen it. Withdraw the tube, reverse it and tap it into place again, taking care that the tiny gas jet hole is in same position as before.

By this time we had the following parts firmly assembled into one unit—fuselage, firewall with landing gear wire, wing with bellcrank mount and control line guides, and the entire tail assembly. Now we were ready to start slopping dope! First, though, a coat of balsa sealer was applied, and after allowing time for drying, all surfaces were lightly sanded. Then came three coats of aluminum dope. Decoration details as suggested on the plans followed. The kit includes U. S. insignia decals. Finally, a coat of fuel-proofer was applied over all.

Another proof that you get your money's worth in this kit will be seen in the dashing plastic pilot who comes complete with a moulded bubble canopy to put over him. If you're artistically inclined, you can touch him up with a little colored dope. He looks scared to death—otherwise just a ghastly white. The canopy was trimmed to fit the fuselage snugly, held on with a few pins and fastened with a line of cement.

As noted some time back, a Cub .049 was chosen for our job. The maker states that the model can be powered with "any small-bore engine." This gives you lots of leeway, for who can say where "small bore" stops and "big bore" begins? We would size the power problem up this way: the Little Mustang is probably a bit heavy for the K&B .02 Infant, but a novice would find the .035-.039 engines just right. The .045-.049 jobs would give real action, while if you put in an .074—WOW!

The stamped aluminum cowl is designed to fit around a Cub. It is shaped over the fingers and held in place with ½" lengths of straight pins.

Our last assembly job, after hooking up the short length of fuel line, was to slip on a Tornado 6/4 prop (plans call for a 5½/4, but maybe Musty won't notice the difference) to be followed by the nifty turned aluminum spinner (also in the kit) and its extra-length screw. This spinner can only be used with "OK" engines—the long screw replaces that normally on Cubs.

The plans call for the ship to balance just about ⅛" back of the wing leading edge, and the test job turned out this way almost exactly. In a kit as completely prefabbed as this, balance depends mostly on the engine used, and if the balance point differs much from that specified, corrective weight should be added to nose or tail before flying.

The finished Mustang could be a beauty contest contender, but it will probably seldom get this far—you'll be having too much fun just flying it!

"What makes you so sure I can't?"

"I *am* letting Freddie play with it too, Mom—he's the center post."

Rainmaking

(*Continued from page 23*)

good downpours—and the county hasn't had to spend a penny sweeping up "blow sand" this year.

That, I think I'm safe in saying, is rather typical of the results we've had since we started tampering with a sometimes obdurate nature. Now, with some of the rough pioneering years behind us, we can let the official statistics on weather, stream flow and reservoir levels make our sales speeches for us:

Recently a large Arizona range area which we seeded from the air got 110 percent of normal rainfall, while the rest of the state got only 22 to 56 percent.

In California our rainmakers went to work over the San Bernardino area and 28 feet of snow were dumped into the mountains, breaking a 58-year precipitation record.

A large reservoir in the Southwest increased its storage between 6,000 and 10,000 acre feet after we did some cloud-puncturing overhead. And down in Mexico, once we started work, a lake that had dropped steadily for seven years began to rise again.

This job of tailoring the weather to suit the taste requires the best in men and equipment. Precipitation Control's very first rainmaker was a prewar P-64 fighter, originally built for the Siamese government but never delivered. That ship has since been assigned permanently to Mexico. Now we fly AT-6's and BT-13's, hyped-up for greater altitudes and fitted out with special generators and jets to spray the clouds with silver iodide vapor, controlled electrically from a panel in the cockpit.

We do much of our work under the worst possible weather conditions plowing straight into massive thunderheads and storm areas which any sane flyer—given his choice—cheerfully would sidetrack. Quite literally, we fly when the birds are sitting it out. Even when airlines are scrubbing schedules off their bulletin boards all around us, we've never canceled a rainmaking flight.

But there were times when I might have wished we had.

Once, while I was doing some midwinter cloud-pelting over the wild mountain country of northern Arizona, the prop of my AT-6 suddenly feathered. I started down through the soup from 27,000 feet.

At 9,000 feet I had the canopy shoved back and was ready to bail out. Then the clouds broke. Down below I spotted a snow-covered highway. I thought at first I'd belly in on the snow. But brush sticking up alongside the road indicated that the stuff wasn't very deep. I slammed down the gear and landed on the deserted road. Then I hauled out my tool kit, fixed the feathering control and took off again.

I've often wished I could have seen the face of the next snowplow driver when he came along and saw those three mysterious tracks running through the snow for a distance, then abruptly vanishing!

Another time I was caught in a sudden and ferocious up-draft-down-draft over the hot desert country of Arizona. My plane whip-cracked so violently that it broke several of my vertebrae. My first thought was that I had collided with another ship. I managed to land my plane, but the boys had to haul me out of it.

Mostly, however, rainmaking is like any other job in commercial aviation. It's a job of straight, methodical and precise flying. And you might put a capital "P" on that word "precise." For no Western rancher likes to shell out good folding money to buy some rain and then watch the clouds promenade defiantly across his ranch and dump their water all over his neighbor's property.

It requires navigation of the greatest exactitude to put a rain right where it's supposed to go when the target is obscured by clouds. We use a local radio beam on many of our jobs, with the transmitter installed in an auto-

"After seeing all the trees around here I decided to get a retriever!"

mobile trailer. That way the man who pays for the rain usually gets it.

Nothing pleases the professional rainmaker quite so much as knowing that he has delivered a few hundred thousand barrels of freshly made water exactly where it was ordered. I remember the story told by a rancher at a recent cattlemen's convention in the Southwest. He had been watching one of our pilots seeding a square cloud pattern which was about seven miles wide on each side. Eight minutes later, said the rancher, there was a "square rainfall," and several customers within the square got a good soaking.

But you don't always need a radio beam to pinpoint a rain. Once, when I was flying back to Phoenix, I spied a likely looking clump of cumulus clouds floating toward the city. Phoenix is not one of my customers but I was in a playful mood. I seeded the cloud, then landed at the airport and called one of the newspapers.

"It's going to rain in a few minutes," I advised the city editor.

He snorted. "Weather man says not a chance of rain," he informed me.

A few minutes later there was a downpour.

Exploits like this notwithstanding, I think it should be borne in mind that rainmaking is still in its toddling stage. Although rainmakers in the East helped New York City whip its water shortage, and rainmakers in the West are making measurable strides toward drought-proofing arid lands, the rainmaking business has a long way to go. Right now we're just about at the point where flying was in 1915.

That's why those of us at Precipitation Control are constantly working on new methods. At various times we have experimented with practically every known rainmaking technique—silver iodide, dry ice, sodium vapors, calcium chloride vapors and water sprays. We design and manufacture the vapor generators for our own planes, and on the side turn out ground generators for customers like the Salt River Valley Water Users Association of Arizona, which is the world's largest irrigation co-operative.

Ground generators, spotted on high ground, send silver iodide smoke up through a short stack, to be lifted from there into the clouds by rising air currents. Some important work has been done in making rain from the ground, although the public hears little about it because aerial rainmaking is far more spectacular. Not long ago, in Oregon, a group of scientists made some snow by hanging blocks of dry ice in trees on mountain tops and milking moisture-laden clouds as they swept in from the Pacific.

Dry ice has been a standard tool of the rainmakers almost since rainmaking experiments first began. But I regard it as a holdover from the horse and buggy days of rainmaking. We rarely use dry ice at Precipitation Control because it's hard to manage. Often it will touch off a damaging cloudburst, whereas silver iodide usually produces an even, steady rain, stays in the clouds longer and weighs much less. Ten pounds of silver idodide will do the work of 30,000 pounds of dry ice. A bare wisp of yellowish-green silver iodide powder, super-heated into a vapor and mixed with water, is enough to uncork a fine rain. And it has been said that the earth's entire atmosphere could be seeded with only 200 pounds of silver iodide.

Silver iodide works on the unique principle of fooling a cloud into think-

ing it's something else, poor thing.

The cloud contains millions of water droplets. These droplets remain suspended in the air unless there are ice crystals present as nuclei to which they can attach themselves and form snowdrops. Silver iodide has a molecular structure very similar to ice crystals. Scattered through the cloud, the silver iodide particles trick the droplets of moisture into building up on them as if they were actually ice particles.

This little bit of moisture freezes and, in a sort of chain reaction, more droplets of moisture are attracted to it. As soon as the crystals grow heavy enough, it commences to fall as snow, hail or sleet. In winter it probably will reach the ground in that same form. In summer the snow will melt at lower altitudes and come down to the ground as rain.

At Precipitation Control we have done some experimenting with a new rain-persuader—sodium oxide—as a supplement to silver iodide. Where silver iodide requires a freezing temperature to do its work, sodium oxide attracts moisture in clouds which are above freezing. Sometimes it will even cause clouds to form in clear air containing a high percentage of humidity. Thus, with sodium oxide, the way is open for the rainmaker to make rain under a wider variety of atmospheric and temperature conditions.

This is an example of how the science of rainmaking is progressing. It is, however, a science which has been abused by barnstorming amateurs scattering dry ice and silver iodide promiscuously through every promising cloud in the sky.

The amateur's tendency is to overseed. This causes the cloud to "blow its top," dissipating without making any rain. Meteorologists are understandably worried about the long-range effect on atmospheric conditions of excessive rainmaking, and the result may be federal licensing of all of us who make rain.

But, be that as it may, rainmaking has drawn the curtains far enough apart to give us all a glimpse of what the future may hold in the almost unlimited field of doing something about the weather. Out in the West, where I live, one very important possibility lies in the control of that great Western scourge—forest fires. And, rather by luck, I've already done a bit of pioneering in that myself.

It happened in 1947, while I was seeding some clouds over the Prescott, Ariz., watershed. From the air I saw a fire starting to spread across a mountainside. Simultaneously I spotted a thunderhead moving toward the fire. At just the right moment, I flew into the cloud and turned on the silver iodide generator. Within a few minutes a rain fell, reducing the fire to a few smoking embers. The Forest Service said I was the first person to put out a forest fire by this method.

But the potentialities of weather management go far beyond that. Some day we may be able to halt hailstorms, prevent cloudbursts, scatter fog. We may find ways to divert tornados and hurricanes. Transport planes may be equipped to shoot dry ice bullets ahead of them in order to break up icing conditions.

For me—and one or two others like me—rainmaking now is only a business. But for mankind it offers the possibility of miracles yet unvisioned, of a disordered nature made tidy and regulated and the elements forced to do our bidding.

Rod's Red Hot

(*Continued from page 27*)

execution is given to each entry.

From this list the flyer compiles his own routine for the judges to follow. He is allowed exactly seven minutes in which to perform and is awarded points on each maneuver completed within that time. Each maneuver is judged according to prearranged standards and the points awarded according to its degree of perfection. Difficult patterns, of course, rate more points than simple ones. And the more maneuvers a contestant can make in the given time the more points he can accumulate. Hence the value of a small-turning-radius ship that is not too slow.

Leaving Langhorne in the Great Lakes, bound for Miami, Rodney ran into a series of mishaps which might have eliminated a less determined individual from the competition before it began. On the first leg of his flight the engine used up its oil supply in too short a time. He flew with no oil pressure for 15 minutes before locating a landing field. From there on he had to continue the trip in short hops as the high oil consumption persisted. Arriving at Miami, Rod pulled a cylinder off the engine and confirmed his suspicions that new piston rings were needed. But no rings of the required type were available there. With the qualifying trials already under way, he had to put the Kinner back together without repairs and fly.

This hasty job only led to further trouble, however, when a loose lock nut jammed a rocker arm, bent a pushrod, and thus caused one cylinder to stop firing. Making an emergency landing, Jocelyn quickly located the trouble. Again the necessary part was not available, so he straightened the faulty pushrod, got the engine operating again and went on to qualify. He also flew the contest without further repairs being made.

Since Rod had never flown in competition, he had gone to Miami primarily for experience. There he met and was advised by experts. Bevo Howard in particular gave him valuable pointers which later paid off. Rodney compiled his flight routine carefully, choosing many of the high-point outside maneuvers which were right up the Great Lakes' alley. He arranged his sequence to allow a minimum of lost motion between stunts. The point value of every maneuver was analyzed against the time it would take his plane to execute it. Finally an ideal pattern was worked out and submitted.

A draw of lots established Rodney Jocelyn's place in the program at 2 p.m. on Saturday afternoon. It was up to him to have himself and the plane ready for the starting signal. You can be sure they were ready to go at the drop of the flag. With the Kinner working perfectly, Rod was off the ground half rolling into an outside square loop with no seconds wasted. Out of that he progressed into a vertical 8 and then an outside Cuban 8. So on through the pattern he flew, eight point sectional roll from inverted position, outside Immelman, outside loop from inverted position, one one-half snap roll in turn, one perfect maneuver growing out of another, now pressed against the seat of his pants by the extra G's of an inside turn, then hanging on the safety belt in inverted flight.

Carefully he compensated for wind

drift lest he lose points by leaving the prescribed area. Always he watched his altitude to avoid being penalized for recklessness. Faithfully he followed the typewritten sequence which was taped to the instrument panel before him and from which he dared not deviate. Proficiently he executed each maneuver whether a graceful Cuban 8 or a sharp double snap roll. As Rodney came down the field on his side in knife-edge flight, his thirty-third maneuver, the seven-minute flag signaled the end of his performance.

Final tabulation of the scores revealed that Rodney Jocelyn, the dark horse, the newcomer, had accumulated 1056 points. His nearest competitor, the master Bevo Howard, had 941. Little Betty Skelton, competing for the first time against men, brought up third place in the field of eight. So to Rodney went the Gulf Trophy, $1750.00 in cash, and the title of National Aerobatic Champion.

Thus began the biggest year in Rod's life. Leaving his former obscurity behind, he suddenly became the Number One air show attraction in the United States. Bookings began to pour in. He signed on with National Air Shows as the feature billing for a tour of week-end stands around the country. In addition he appeared at racing meets and aerial spectacles such as the Corpus Christi Air Fiesta, Westchester County (N. Y.) Air Races and Reading, Pennsylvania, Air Show and Race. This is the career, this the type of flying that Rod loves.

This expert knows as well as any of us that fame can be fleeting. He knows that his title is but a temporary thing that must be re-won each year. So he is preparing to do just that. Competitive aerobatics like air racing is resolving itself into a battle between airplane types as well as between individual pilots. Special planes are being built and others are being adapted for this specialized game. In line with the trend, Rodney has developed another Great Lakes into a stunting plane. His newest ship makes use of a 200 hp Warner engine for a better power advantage without loss of maneuverability. Rod himself, of course, could have no better training than the exhibition tour which has taken so much of his time since the great win. It has sharpened his skill, added to his zest for more of the same and has further developed that natural aptitude that has made Rodney Jocelyn an aerobatic ace.

Rod Jocelyn's Sequence at Miami

1. Half Roll. 2. Outside Square Loop. 3. Vertical Eight. 4. Outside Cuban Eight. 5. Eight Point Sectional Roll from Inverted Position. 6. Outside Immelman Turn. 7. Outside Loop from Inverted Position. 8. 1½ Snap Roll in Turn. 9. Inverted Hammerhead Turn. 10. ¾ Snap Roll. 11. Square Inside Loop. 12. Inside Loop. 13. Loop with Snap on Top. 14. Cuban Eight. 15. Eight Point Sectional Roll. 16. Immelman Turn. 17. 1½ Snap Roll. 18. 1½ Outside Snap Roll. 19. Immelman Turn with 1½ Outside Snap Roll recovery. 20. One Slow Roll Turning 360 Degrees. 21. Inverted 360 Degree Turn. 22. Four Rolls in 360 Degree Turn. 23. Double Snap Roll. 24. 1½ Knife Edge Snap Roll. 25. Snap Roll. 26. Snap Roll in Turn. 27. Four Point Sectional Roll. 28. Hammerhead Turn. 29. Slow Roll. 30. Very Slow Roll. 31. One Roll in 180 Degree Turn. 32. Knife Edge Snap Roll. 33. Knife Edge Flight.

Round-up

(*Continued from page 62*)

since he wanted us to go back across the runway and run around it, which was a run of about three quarters of a mile, we continued on our way. While looking for the model in a vineyard, a state policeman drove up and told us to get in his car. He radioed for a deputy sheriff and after due waiting and some fast talking by the contest director, your reporter was released. So in the future walk, do not run across a runway. . . .

By way of Ocie Randall come reports of contests around Fresno. Seems as though those boys are really out after the national records. Every issue of their bulletin is trying to pep up the local modelers to get after those records. The results speak well for themselves. The San Diego Airliners and the La Mesa Airfoilers had another of their intercub contests at La Mesa. When you consider the fact that there were over 2,000 points scored by each club, the Airliners margin of 36 points was a very tight squeeze. The spirited cooperation of the club members is indeed a wonderful sight. When it comes time for a fellow to make a flight he has more helpers than a football team. Prop, gas, boosters, flight. There seems to be somebody standing by with anything the flyer can need. We should have more contests like this.

After seeing those hand-launched gliders at the Nats, the Bakersfield club got right to work and decided to see if it was really so. It must have been, for Contest Director Francis Stewert is sadly lamenting the fact that the contest was not sanctioned. Winning time of 24 minutes plus is well over the record.

There is a big move afoot in Southern California to form an association of the model clubs. It is thought that by banding together, bigger and better meets could be held; contests that would not conflict with each other. This association will include all the free flight clubs from Bakersfield to San Diego.

Heard from Ed Slobad from L.A. about a demonstration the old master "C.G." Goldberg put on with his Cumulus at Los Angeles—seems the flight was real nice. The Carlsbad Caverns was the stopping off place for all model builders after the Nats. Ran into Sal Taibi and wife Nan in El Paso; they had just been there as had Francis Stewert and the Bakersfield delegation, Johnny Brodbeck and family, Dennie Davis, Les Bartlett, Ed Rominger and also Everett and family. They sure were beautiful, the caverns.

Dennie Davis has a new ship which he calls the "Super Hogan." It has the same familiar lines that are characteristic of his designs. The construction of the wing and tail mark a radical departure from usual type, being of geodetic design. The usual leading edge and trailing edge sheeting is found on the wing and tail with a completely sheeted fuselage and wing mount. The front end is exceptionally clean and well faired since Dennie used an Atwood Timer tank to mount his Torp 29-32 combination. The area is a little on the big size, being around 800 sq. in. But all in all it just comes up to weight so we can expect the usual terrific Davis climb. . . .

The San Diego Aeroneers have been asked by the CAA to please cease flying at Aeroneers Field. It appears one of the fellows was flying a control line model from the end of one runway one morning when a fellow flying a lightplane wanted to land. Since an old axiom states that no two objects can occupy the same space at the same time, there was nothing for the lightplane to do but to stay upstairs. After about ten minutes of cruising around waiting to land, the model finally ran out of gas, so then the lightplane landed. A very irate pilot reported the incident to the CAA.

Amiable Bill Gibbs who operates the airport is really going out on the proverbial limb in providing another flying site for the model builders. He is getting the city to bulldoze a larger flying site with parking area. It is hoped that there will be enough area for two U-control circles as well as a good area for free flight models. Bill also manages to spend time and provide airplanes to find most of the models which are lost through out-of-sight flights. The amazing part of all this is that he does it with no charge to the modelers. Our hats are off to Bill, and it is too bad we can't find more fellows like him. . . .

This year's All Western was flown from three different flying sites; the U-Control events were held at the spacious Hollywood Park Race Track parking grounds where there was so much room that the contestants were lost in space. In direct contrast the indoor events at the National Guard Armory in Exposition Park were so cluttered up with modelers that one had to practically fight his way over others to get to fly. The outdoor events were on

"Don't let that come-hither stuff fool you, Ethel—he just wants to borrow some glow fuel!"

Sunday just north of the International Airport.

One big highlight of the outdoor events was the unexpected arrival of Herman "Fish" Salmon and the other two pilots of the three Cosmic Winds who made several passes over the field and landed at the airport. Fish and the other fellows then motored to the flying site and were interviewed over the P.A. system while the officials were computing the final results. All this did away with the usual tense waiting and to the amazement of everyone the results were ready before the contestants realized that the time had passed. One other incident which deserves gobs of orchids was the fact that a very large percentage of the models which drifted out of sight were returned. Modelers were pleasantly surprised to find their models prominently displayed in the front yards of a very thoughtful populace of Loyala Village and the directions given to questioning modelers enabled quite a few fellows to find ships they had lost sight of. Our hats are off to a very helpful public. Perhaps more people should take notice, a lot more models would be recovered.

As for the times, they were not as high as in previous meets; in indoors this is attributed to the very low ceiling of 60 ft.; the outdoor times were limited to five and six minutes before the models were out of sight. The only ten-minute flight of the day was with a 14-foot towline glider which sure performs majestically. Built by M. Foreman, this ship has won practically every contest it has been entered in. It is head and heels above anything these old eyes have ever seen. On the five flights observed, the ship has gone out of sight or dethermalized on each flight. . . .

For a long time we have been hearing stories about indoor thermals and wondering if they are possible. Chuck Hallum had just made his third flight with his indoor stick model; the ship landed because it did not have any power winds left; to get the last few winds out, Chuck hand-launched the model since the prop turns faster if the ship is moving. When it left his hand it became readily apparent that he had tied into one of those thermals. By the time the ship got back to where it had been launched, it was about ten feet high and climbing with the nose down. After a climb to 20 feet and a flight of over three minutes, the ship settled to the deck. It was too bad that Chuck did not hang onto this thermal on his flight for he could have won the event. As it was, he was only seconds out of first place. . . .

In U-Control, since all the speed ships were flown in one class, the Class A model had a 30 mph handicap, the B jobs 20 mph and the C jobs 10 mph. Points for sweepstakes were awarded according to the number of contestants in the event, with a maximum of 10 in any one class.

We heard some very good ideas for the Wakefield eliminations which are to be held next year and are presenting them in the hope that it may start the ball rolling early. One of the best is as follows: Each of the AMA district vice-presidents to shape up various eliminations in his district, with a final contest to be held in the most centrally populated area. These winners to be locally sponsored and sent to a final eliminations to be held as last year. Each district will be allowed a team of flyers. It was suggested that where possible the contests be held in the evening to eliminate as much as possible those thermals flights. In each case the times of all the winners to be recorded and sent to the finals. The finals to be held on two separate days under the exact conditions as the contest in Finland, i.e., for every contestant to draw for flight numbers and for the flights to be taken in numerical sequence.

By using this method and requiring the fellows to fly when their number is called, it is felt that when and if the contestants get over to the finals that they will be well experienced in the contest procedure and will have a much better chance to bring home that famous mug. As for the actual winners, they are to be picked through averaging their flight times throughout all the preliminaries as well as the finals. By this, if a fellow flies in four meets his average through all these will constitute his contest time, and the fellows with the highest average will be the winners. . . .

Along with this the U-Control and free flight gas builders are wondering why we don't have a complete Internationals and have teams for them also. This seems like a good idea at this time and should be pushed. It would be a good thing for all of us if we were able to make personal contact with modelers of other nations, for this was the original idea of Lord Wakefield and its merits have been proven. . . .

From up Oakland way Carl Rambo tells us of an organization of the various free flight clubs into one master group. The individual clubs still hold their separate meetings since there is too great a distance to cover for all the modelers to attend the

council meetings. This co-op, by pooling all the members, has much larger contests and the prizes are better. For every meet, each club furnishes a certain number of timers who are not allowed to fly at this meet, which enables them to put on super contests with plenty of good timers and still allows all the fellows to fly, since they serve on a rotating basis. Members of the various clubs enter the contests for no entry fee, and all those who are not club members but who desire to fly, must pay an entry fee. Sounds good, perhaps more cities will follow their example. . . .

From Palm City way we hear of the formation of a new club composed of both free flight and U-control modelers. They meet every Saturday night at the Youth Center and all local members are invited to attend, as soon as possible, since they plan to hold their election of officers some time in the near future. They hold indoor contests in the Center's gym, U-control meets in the new ball park which is used by the Seattle players for spring training, and for free flight they have the entire desert with nothing but sand and room. The club is sponsored by the Youth Center. . . .

The San Diego Airliners put on a demonstration at the local Jalopy Races, Jim Saftig, Dennis Alford, Charlie and Lawrence Goodale and Cliff Potts flying their ships. Potts flew his flying saucer for the crowd and drew a lot of interesting comments for this unusual design. Larry and Cliff put on a swell dogfight and needless to say they all received quite an ovation for a very fine display of flying. . . .

The Oakland Cloud Dusters have developed a new Wakefield which promises to do great things in the future. Designed by Manny Andrade, the ship has a very long nose moment arm which gives a ballooning glide which seems to bounce into thermals very easily. The prop is 21 to 23 inches in diameter depending on the builder, has a retracting landing gear and a pop-up tail fuse dethermalizer. The wing and tail have their usual over and under construction, and it is of fairly high aspect ratio. They mark off the horizontal tail in minutes of fuse time so that it will pop at any predetermined time.

The trend in gas models here on the Coast is for smaller motors and light ships. The builders are keeping the weight down the minimum for the motor and some are building larger and larger ships. By keeping the weight down, these ships then seem to get as high under power with a much better glide. The last three contests were won with Arden .099. Jack Oxley won two of them with his Powerhouse.

The contest in Visalia was one for the books. Texas-like weather held up the meet until after 1 p. m. when the rain finally stopped. The fellows had quite a few ten-minute flights on their first attempt but the thermals soon gave out and those who still had their ships had a hard time in getting any really long flights. Those thermals that were hooked were really strong, several ships continuing up and out with their chutes dragging merrily behind. The results are not complete but we hear that Jack Oxley won Class A with his Powerhouse and Russ Johnson won Class B.

From up in Anaconda, Montana, we hear from Bob Carroll, who has been doing a whale of a job in running contests all over the state. Bob was a very busy fellow last summer and even accompanied the Montana boys to the Internats at Detroit in a capacity as coach. He says the fellows did not set the world afire but came home with plenty of experience, just watch out next year. The Fourth Annual Control Line Circus was held at Great Falls, Montana recently, co-sponsored by the Electric City Modelers and the merchants of Great Falls. Joe Forbes was displaced as State Champ by John Smith of Billings. Seems like Joe had all kinds of tough luck and wound up a close second. Bobby Laslovich by virtue of winning the Jr. Championship now holds two statewide Jr. titles.

The All Westerns with their unorthodox grouping of events may have started something for we see that the Van Nuys Valley Hawks are having a combined rubber class, towline gliders, Half-A gas and Half-A payload. The Bakersfield Winter Contest which will be a two-day affair for the first time, with rubber and towline gliders on Saturday afternoon and on Sunday all classes of gas along with Half-A payload and A&B payload, should be a very big contest. Other contests are the San Bernardino Flying Wheels for all classes of free flight gas, the Delano Thunderbirds 1st Annual Meet in which they combine all classes of speed with the usual handicapping. For stunt models they have Novice, Jr., Sr. and Open-Expert and also a scale event. The Orange County Thunderbugs are having a contest which is a little different inasmuch as it is an all-stunt contest They are having the following events: Jr. novice, Sr. novice, advanced, experts, team stunt and women's stunt. With three special awards.

For the story department this month we have a tale which will delight all you modelers who have your own pet theories and particular designs. From up Oakland way comes the following tale. It seems that Gordie Peterson likes to build square "box" fuses with square tips and that Stuart Bennett likes the swept-forward ellipses for wings and tails. A very intense rivalry sprang up between the two and a hot argument took place, each propounding the pros of his design. By the time they got into the fourth quarter a challenge was issued and needless to say it was immediately accepted. The date was set for some three weeks hence. When the appointed time came around the trusty modelers showed up at the appointed place, and low and behold each had put up so convincing an argument that each had built the other's design. We have not as yet found out how the meet came out for it is rumored that each of them felt so bad after a good razzing by the local fellows that they never even flew.

—DICK EVERETT

"It's a dandy little plane all right—but it flies out of sight every time!"

Ole Slippery

(Continued from page 37)

this assembly is down on the board add the 3/8" sheet bottom over the rear portion of the fuselage.

When dry, the fuselage can be taken up from the board and work continued on the top and front. Spot-cement the top blocks in place and carve to proper cross section. See the typical cross sections on the plans. The fuselage top is semi-elliptical toward the rear. Cement a doubler of 1/8" sheet balsa inside the fuselage sides under the engine bearers and back to the landing gear bulkhead. Cut off flush with bottom and front edges of the fuselage sides. Add 3/8" x 1/2" strips along the bottom edges of the sides at the front. Cement 1/8" sheet over these strips with grain running across fuselage. This forms the bottom of the fuselage front. The 3/8" strip is gouged out on the inside to clear engine head, and the 1/8" sheet bottom is cut out at the back for air outlet.

Spot-cement block balsa over the nose for the front cowl. Complete carving and sanding of the fuselage block's top bottom and nose. Leave front area behind spinner oversize until engine is installed and alignment checked. Then carve to meet spinner back plate. The blocks can be removed and gouged out to wall thickness shown on the drawings.

The stabilizer and elevator are made at this time so that the pushrod can be installed before the fuselage rear is closed up for good. The stab is hard 1/8" sheet cut to outline shown. The elevators are joined with a 1/8" x 1/4" hardwood spar. Fabric hinges are used and the horn is 1/32" brass sheet soldered to a tin channel slipped over the spar. Wrap with thread and cement liberally.

The tailskid wire should be bent to shape and cemented into the fuselage bottom. Add a 1/16" plywood wedge over the wire and use plenty of cement.

Cut down the rear top edges of the fuselage sides to receive the stabilizer. Notch sides under spar for control movement. Cement stab in position with push rod run down through fuselage. Leave some excess on the front end of the wire so that it can be bent to fit the bellcrank when the wing is joined to the fuselage.

Cut out the 1/16" plywood fin and slot the rear top block along the center line. Cement the fin into the slot so that the bottom of the fin is flush with the bottom surface of the block. This will rest on the stab top surface. Notch fin bottom and top block for horn and elevator spar travel. Cement the fuselage top block and fin down onto the sides and stab. Add a bulkhead inside the hollowed block at station 5; this forms a headrest and strengthens the top. The fuselage top block ahead of the canopy can be cemented down now. Carry the cement along the fuselage top edges only from formers 3 to 5. The removable cowl top can be cut off with a razor blade at station 3 after the cement has dried. This will insure a good snug fit at the cowl rear. The space under the top at station 3 is filled with a sheet former. The removable cowl should have 1/16" plywood formers cemented in place as shown for stiffness and alignment with fuselage top. These formers extend below the top about 3/16" and should be wide enough to fit snugly across the

inside of the fuselage. This acts to key the cowl to the fuselage.

The engine can be temporarily installed now. Use nuts soldered to a tin strip under the engine bearers. Drill bearers, add nut plates and bolt engine in place. Give engine about 1° to 1½° right thrust. Cement over nut plates and let dry. Later when engine is removed, Plastic Wood can be packed over nut plates to hold in position.

The top and front cowl blocks should be cut out to clear shaft extension and the spinner backplate installed on engine. Carve and sand cowl to a smooth line around the back plate.

The top cowl can be held down on the fuselage with any gadget you may prefer. The original used a nut and bolt arrangement as shown. The nut is soldered to a small angle and the angle is held to the crankcase rear with the back plate retaining bolts. The cowl top has a ½" square of 1/16" plywood inlaid in the top and the bolt passes down through this into the nut.

Give inside surfaces of the nose section back to former 3 a coat of Weldwood glue thinned to brushing consistency. This is an excellent fuel proofer and serves also to strengthen the structure.

Wing construction is next. Join 3" wide sheets of ¼" stock along their edges to form bottom of the wing panels. Make two halves, they will be joined with dihedral later. Cut out ribs and cement onto the bottom panels. Omit short ribs 1 at center line of wing. Remember to punch holes for line leads in the left side ribs. Cover the top surface with 1/16" sheet. Use 6" wide sheet if available or cement 3" wide sheets together to necessary width. Bevel the underside of the 1/16" sheet at the leading and trailing edges so that a good joint results when the top skin is cemented down.

When the skin is dry take up the panels and taper the bottom sheet to ⅛" thickness at the tip. Carve and plane the bottom surface to the airfoil shape shown, leaving about 1/16" radius at the leading edge and 1/32" thickness at the trailing edge. The wing panels can be joined now. Sand the inboard ends with a slight bevel so that the dihedral is as shown. Add short ribs 1 under skin and cement panels together. Pin down to board at center and block up the tips. When dry the wing can be taken up; the bottom at the center joint should be covered with silk strip about 1½" wide.

Cut out the top skin above bellcrank location as indicated. Cut out a hole in the bottom sheet for the ¼" plywood bellcrank mount. Cement this in place and when dry, drill for the bellcrank pivot bolt. Run the line leads down through the left wing and form ends onto the bellcrank. Bolt bellcrank in place temporarily. Add the ⅜" sheet tip blocks now. Drill the left one for ⅛" dia. tubing guides, slide tubing into holes, and cement block to wing tip. See that line leads pass through tubing and tip ribs freely. Sand wing surfaces and tips smooth and check fit of center section into the fuselage bottom. When alignment here is O.K. mark push rod for bending to the bellcrank with the elevators and bellcrank in neutral. Bend push rod and place in bellcrank. Solder a small washer on the rod under the bellcrank. This will have to be done with the bellcrank pulled up out of its well in the wing. Check control freedom with wing held in position under the fuselage. Remove any binding or stiffness now.

Cement the wing into the fuselage bottom and let dry thoroughly. Cover the center section bottom with carved ½" sheet to complete the fuselage contour.

Add lead weight to right wing tip so that model hangs level along thrust line.

Sand the entire model smooth and give two coats of clear dope. Fuel proof finish should be used from the wood out. The original is finished with Testor's Sta. Sand doped wood smooth and apply a layer of lightweight Silkspan over the whole model. Use clear Sta to apply the paper. Sand smooth and apply another coat of clear Sta. Sand with finishing paper and then apply as many coats of colored Sta as desired; four should be sufficient. Install the pilot's head and canopy before final colored finish is applied. Mask off canopy with Scotch Tape when applying dope. Trim-Film decals are used for license and racing numbers. Put license on upper right and lower left wing. Racing numbers go on upper left and lower right wings. See photos for proper positioning.

The engine and fuel tank can be installed permanently now. If the fuel cut-off described below is used, run the fuel line out of the rear top of the tank. Check the balance as is shown on the plan.

No fuel cut-off system is shown on the main plan. However, the detail is shown on the cutaway drawing. A K&B Shur-Stop is mounted in the fuselage above the fuel tank. The release is actuated by an arm extending down beside the front of the bellcrank. This utilizes only the very last bit of down travel of the bellcrank. You may prefer to use a cut-off system other than this. Don't overlook the possibility of two-speed for your team racer. Deco may have available by the time you read this a glow plug two-speed control that will enable you to land and keep your engine turning while your mechanic refuels your ship. This would really save time on the pit stops.

We hope Ole Slippery will give you spots before your eyes—checkered spots, of course.

BILL OF MATERIALS—OLE SLIPPERY

(*Balsa unless specified otherwise*)

2 ¼"x3"x36", wing bottoms. 1 1/16" x6"x36" (or equiv. 3" wide), wing tops. 3 ⅛"x3"x36", fuselage, stab, elevator, formers, wing ribs. 1 1"x 2¼"x11", front cowl block. 1 2"x2¼" x11", rear cowl block. 1 1⅜"x2"x2¾", nose cowl block. 1 ⅜"x3"x18", wing tips, fuselage bottom. 1 ½"x3"x7", fuselage bottom. 1 5/16"x½"x11" (hardwood), engine bearers. 1 ⅛"x ¼"x12" (hardwood), elevator spar.

Scrap ⅛" plywood for landing gear bulkhead. 36" of 1/32" dia. wire for line leads. 18" of 1/16" dia. wire for pushrod and tail skid. 12" of 3/32" dia. wire for landing gear. 1 ½" dia. Froom Spinner. Eye or "J" bolts for landing gear fastening. 1 ounce fuel tank. 3" Veco bellcrank. 1 ⅞" dia. wheels. 1/10 scale pilot's head. Berkeley Minnow canopy. Fabric for elevator hinges. Weldwood glue, cement, fuel-proof clear and colored dope. Lightweight Silkspan. Trim-Film decals.

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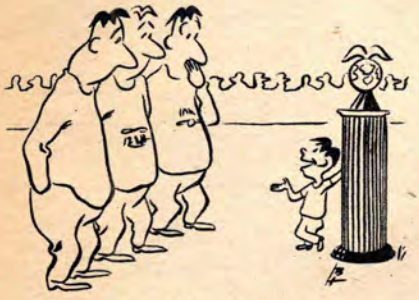

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#ATA-51—F-82 twin-engine U-control scale; Bellanca Pacemaker; Easy-Bo free flight.

#151—Reinhart's stunt winner; Little Twister free flight; Semi-scale Bellanca; Sopwith Dolphin.

#1250—Heath Parasol and Mid-wing: Hi-Pressure Pete stunt job; Miss Quito free flight; El Dobo rubber.

#1150—Wee Bee scale free flight and U-Control; DeHavilland Moth; Screamliner "60"; Kinglet.

#1050—Delanne semi-scale Duo-Mono; Strato Flash free flight; Buhl Pup; Peppy U-Control trainer.

#950—Pitts - Skelton aerobatic bipe; DeHavilland twin-engine Comet; Little Senator A/2 free flight.

#850—Kitty Hawk rubber models; Gazookus free flight; Corben Super "Ace"; Loopy semi-scale stunt.

#750—DeHavilland "6"; Skylark free flight; Stutz Bearcat auto; Texaco 13; Challenger outdoor stick.

#250—Lockheed Orion; Junkers Attacker; Wee One free flight; Andrews' indoor stick; Goodyear 3-views.

#150—North American AT-6; Foote's Pacific Soarer free flight; Zippy semi-scale U-Control stunt.

#1249—Mooney Mite scale U-Control; Triumphant big stunt job; Stinson Detroiter.

#1049—Southerner free flight; Nightmare rubber; Tipsy Junior scale; Blue Devil; Roscoe.

. . . . . .

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Li'l Lightning

(*Continued from page 43*)

notch at corners with scissors. Glue these flaps to sides of fuselage; pull each tight with pins. Punch holes through silk, re-install engine so nose block may be carved and fitted. Glue complete block against silk using heavy coat of glue on inside surfaces.

Extension should be soldered to needle valve so it may be adjusted without having to cut nose block away. Saw needle valve off close to adjusting knob, slip it into short piece of 1/16" O.D. brass tubing. Fit wire handle into opposite end of tube, solder two parts together. Fuselage assembly is now complete; don't glue to wing until last operation, so a better balance can be established.

Select some extra-hard balsa for the booms. This should be straight-grain ½" sheet stock. Lay out side view, cut square across. With small plane taper rear end as shown, leaving front full size where it attaches to wing. Round forward section slightly with knife, shape remainder of boom with coarse sandpaper on block. Use a rounder block for curved sections; don't sand with fingers or finished job will look lumpy when painted.

Fit forward end of boom to wing. Lay piece of sandpaper on wing; sand foot of boom against it. Hold booms against wing, check from front, see that they are parallel. Due to dihedral in wing they will not fit square against each wing panel. Glue and hold in position with pins until dry.

Start tail assembly by cutting elevator and stabilizer from 1/16" sheet, sand both parts. Attach silk hinges, allow to dry. Check top end of booms—they are flat where stabilizer attaches—then mount elevator assembly. Cut rudders from quarter-grained sheet balsa, insert stiffeners to eliminate warp as shown. Cut stiffeners from hard 1/16" sheet; while holding in position on rudder mark outline with sharp knife. Cut out balsa; glue stiffeners in position. Sand rudders when thoroughly dry. Glue rudders in position with stiffener glued to boom as well as stabilizer.

Landing gear is made and attached to wing. Bend wire, starting with top section first. Cut plywood base plates, attach landing gear wires by lashing with soft iron wire. Prepare all three landing gear supports, glue in position holding with pins at edges.

Controls can be prepared. Cut three-inch bellcrank and control horn from lightweight tin. Bend flange on one edge of bell crank to act as stiffener. Glue control horn in place near left-hand boom, apply several coats of glue over tabs. Drop bellcrank in position, bend pushrod from .020 wire so it follows bottom of wing and inside edge of boom. Install two guides made from bent pins to support pushrod. Remove pushrod and bellcrank; set aside for paint job. Now that all parts are attached to wing, fuselage may be glued into position.

Install engine in front of fuselage and place assembly on wing, holding in position with a rubber band. Check balance point against position marked, move fuselage slightly to adjust balance. Before finished paint job is applied model should balance approximately ¼" ahead of position indicated. If fuselage cannot be moved far enough to obtain proper balance, add weight inside nose block. When correct balance has been established mark fuselage position on wing, then fit and glue permanently. Your Li'l Lightning is now ready for its job.

Apply several coats of a wood filler such as Aero Gloss Balsa Filler Coat, or talc and dope. Sand away filler until grain can be seen, then apply one coat and sand smooth so excess weight will not be added with unnecessary filler. Sand smooth, apply two or three coats of hot fuel-proof paint. Trim design shown in photographs can be painted on by masking with narrow strips of

tape. If ⅛" tape is not available, stick some wide tape against a window and split with straight edge and razor blade. When paint job is complete reinstall controls, attach lead-out wires and windshield.

Recheck balance and inspect wing to see if it has warped. The inboard wing should have a slight twist upward on leading edge. If wing tip weight has been installed properly, model should balance ¼" to right of center line so it will roll outward if lines become slack. Use an equal amount of up and down on elevator. The usual arrangement of more up than down will not work on this model. Good results were obtained in test flights with 30-ft. lines (.004), a Kaysun plastic propeller and Ohlsson AA Fuel.

Li'l Lightning is good in level flight, wingovers, and inside loops—but outside loops are really murder. Air drag on the high tail assembly causes the ship to nose upward, so it will do tight inside loops but will not pull through an outside. When you go out for your first flight be prepared for some unusual praise for this slick-looking Half-A.

Bill of Materials—Li'l Lightning

1 pc ¼" x 3" x 36" soft balsa, wings, max. wt. 1.4 oz. 2 balsa blocks 1" x 1½" x 9", fuselage 1 pc 1/16" x 2" x 36" medium balsa, tail assembly and bulkheads. 1 pc ⅝" x 1" x 24" hard balsa, booms. 1 block of balsa 1½" x 1½" x 2", nose block. 1 pc 1/16" dia. wire 36" long, landing gear. 1 pc .032 wire, push rod. .020 wire, line leads. 1 pc 1/16" plywood 3" x 8", landing gear and bellcrank mount. 1 pc 3/32" hard plywood, firewall. Half-A engine and fuel tank. Soft iron wire, silk, 3 wheels (1" dia.), scrap 1/32" plywood, scrap tin, paint, wood filler, masking tape and glue.

Dope Can

(*Continued from page* 41)

that an equivalent of the Wakefield Event should be established for Half-A free flight since there is so much more interest in this type of event."

Concerning the West Coast threat to organize another model organization outside the Academy, this fellow opines, "If your group . . . feels that they should organize their own model association, I am quite sure that only if it is affiliated with the Academy in some way will it be possible for it to endure and grow. Unfortunately, we are all able to start these new organizations with good intentions, but someone generally takes over the organization business for his own selfish interests at a later date."

Looks like some interesting times ahead for American model aviation.

Dope on PAA-Load. George Gardner, Educational Director for Pan American World Airways, has given us an advance proof of the Pan-Am booklet on the 1951 PAA-Load event awards and rules. Here's the gist: Cash prizes of $100 for 1st, $75 for 2nd and $50 for third places will go to winners in under-21 and over-21 categories for the Half-A and combined A-B classes. Similar cash awards will go in the Special Meet Clipper Cargo Event, an all-ages-combined affair in which contestants try to carry the greatest load using Half-A power.

That's for the Nationals. PAA defines Half-A as .000 = .050 cu. in. displacement. In the big regional meets, PAA will award trophies (no cash) to 1st, 2nd and 3rd place winners in Half-A and combined A-B. Competition will be divided into two classes—over 21 and under 21. If the local director wants to run a Clipper Cargo event, that's his decision. No trophies will be available for the event—only at the Nationals.

In general, the standard AMA free flight rules apply to PAA-Load. Additional regulations governing the load-'er-up-'til-she-busts cargo event are quoted from Mr. Gardner's opus: "Material carried is at the option of contestant. Choose that which can be built up or cut down readily such as a bottle of mercury, a jar of washers or small ball bearings. Load must be carried inside cabin or fuselage and secured so that it will not shift during flight. Upon conclusion of each flight which contestant wishes recorded in competition, model must be returned to registration desk by contestant in company of timer for inspection to prove that it landed safely with payload. The

"Not locusts, mister—Half-A free flights."

winner is the entry carrying the greatest amount of payload in an official flight and landing safely with load intact. R.O.G. take-off, 20 second maximum motor run, flight must be at least 40 seconds."

Half-A dummy occupant shall consist of a body at least 1.5 inches wide, 2.25 inches high, ¾ inches thick and surmounted by a head at least ¾ inches square. Can be made of any material, but must weigh at least 3 ounces. In the combined A&B event, Class A entries carry 1 dummy, Class B carries 2. These characters must be at least 3 x 3 x 1 inches surmounted by a head at least 1 inch square. Any material; each must weigh at least 8 ounces. You provide the passengers; Pan-Am doesn't want any of its regular passengers flying in some of those weird pylon jobs.

This is the straight goods on the payload compartments (some fellows fudged a little so that rules had to be made a little more specific): "The occupant(s) [This is G.G. speaking] must be carried in an upright position relative to normal flight, facing forward (the 'face' is considered to be on the broad side of the occupant) and within an enclosed compartment providing 'visibility' through transparent area(s) at least ¾ inches high for Half-A and at least 1 inch high for Classes A and B to the front and to both sides of the heads of the occupants. The occupant(s) must be readily removable from the compartment for checking of weight and measurements."

Genial George, incidentally, tells us that the Elgin watch which Ray Matthews flew across the Rio Grande in the world's first international Clipper Cargo flight reached Finland safely where it was presented on behalf of PAA to Aarne Ellila, '50 winner of the Wakefields.

Get Comfortable. Bob Buragas of the East Orange, N. J., Buragases, a well-known modeler and quiet, deep thinker on matters model aeronautical has come up with an epistle worthy of considerable space. We relinquish the remainder of this particular spot to Bob. Take over Mr. B....

The present "yackity yack" concerning the alleged bust-up that will occur if the West doesn't have its way in connection with the AMA is a lot of stuff. True, dissension does exist and it is predominant in the West. But this is because the West has greater activity and interest in aeromodeling than other areas in the country.

Whenever a model builder complains the crux of the plaint is based on some rule or regulation that seems too restrictive. The failure is with the modelers. Any rule is a means of producing equality of competition. It is formed out of many trends and trials and in the end is a compromise of all opinions. Yet the majority of modelers will not accept a compromise because they have to give in slightly. Plainly, these builders do not wish to fly with other modelers. Their ego leads them to believe that they have the universal panacea for all modeling ills. Based on this, they have condemnation for the other's point of view and expect commendation for their own. This is known as being fair!

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Many modelers do not have the background to know what the problems are when it comes to framing rules. As an example I'd like to refer to my own background in pointing out the failings of many modelers considering rules. As a builder, I have been active for 16 years. Let us go back to 1939 and see the picture then. The major bug was the fact that wing loadings were too high, cross-sections were too high and R.O.G. was too difficult. Today, all of these complications (so-called) have been eliminated. A few years later dethermalizers were listed as a must and when this didn't work a ten-minute flight limit was imposed. The idea was to lower times—times are still high and many modelers forget to use dethermalizers.

Let us not forget the example of thoughtless rules consideration. In '39 I felt that wing loadings should be lowered because models were too restricted. This was because I was a beginner and advanced competition was too much for me. What I was lacking in knowledge concerning adjustment was attributed to failings in the rules. By 1943 a change of heart was experienced. Wing loadings should be raised; I still have graphs showing that the loadings should have been as high as 12 ounces per 100 sq. in. of wing area. Models of this type were built and flown with high times—22 minutes and 47 seconds for a "D" towline.

In 1945, the first contest I attended after the war, an interesting picture framed itself: the weather was gusty and many hand-launched gliders made times over 10 minutes. At the same time, towline times were barely over 2 and 3 minutes. The cry went out, "Wing loadings on big models are too high!" I fell sucker to that line, too, and joined the crowd.

Today, my opinion on wing loadings is a shrug of the shoulders. The issue is of little consequence. If models are made light, they will be good thermal soarers. If they are heavy, they will be good dynamic soarers. Either way the model will depend on its soaring qualities which to a great degree means luck and good judgment.

To explain dynamic soaring, it is based on a theory set forth by Lanchester. He contends that all aircraft fly along a phugoidal curve. This is based on the word *phugae* meaning "to avoid." Thus, aircraft fly along a path as if avoiding obstacles. A glider will fly a path equivalent to a stalling oscillation and in so doing can gain great altitude upwind. This action requires an increased mass so that the required work of lifting the model can be done. Since this lifting action occurs along an inclined plane the function can operate. Plainly, dynamic soarers must be heavy!

Back in 1943 we wanted lower wing loadings—yet the hand-launched gliders made high time because they were heavy enough to soar dynamically in the gusts of wind. Unwittingly, we chose the wrong solution because of lack of knowledge.

Rules cannot supply a modeler with greater luck or the ability to adjust a model to variable climatic conditions. They cannot compromise a thermal soarer and a dynamic soarer into a super-aircraft. Lastly, they cannot make a mediocre modeler into an expert!

All in all, modelers should build *to the rules* and accept the challenge that goes with them. Instead of spending fruitless hours finding ways to get

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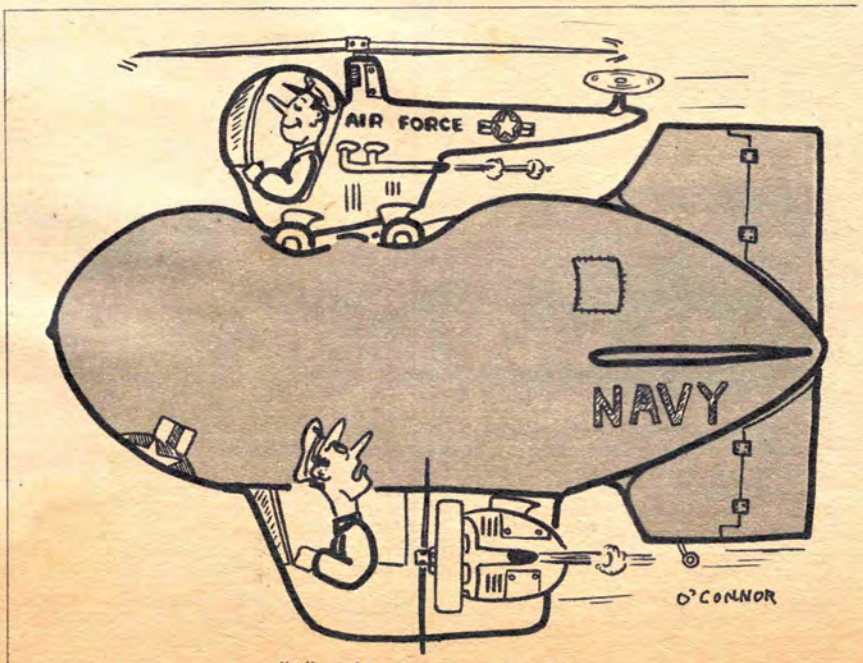
around the rules, that time should be devoted to building better aircraft under the present rules. Rule government is lax to the degree that each contest has different rules while professing to follow the same pattern. Therefore, how can we say that the comparative picture is of a certain quality?

Yet we do need some modernization of the rules and rule systems. These changes should not be whims but necessities and should take into consideration all of the model builders and not just small cliques.

First and utmost is security. When we buy anything we want a guarantee. When we accept the rules pertaining to model aircraft we also want a guarantee—the knowledge that the rules will stand in effect for a given period. This guarantee can be gained by a regulation requiring all rules to stand for a minimum of two years. Thus, if a rule isn't worth keeping for two years it's not worth accepting in the first place.

Second is the knowledge that the rules will favor the modelers required to use them and that they will benefit all and not just a selected group. To do this, all rules should be voted on by the group they concern. This means that a plan is required to divide modelers into free flight, control line, indoor and radio control. Allow minority groups to have a say regarding their own rules. Why should control liners restrict free flight and vice versa? Why should gas modelers vote on indoor requirements? And why should a non-radio flyer tell the radio flyers how to run the radio event?

This second suggestion would require a modification in licenses at the AMA.



"All right, wise guy, get off!"

ADVERTISERS' INDEX

February, 1951

While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional change or omission in the preparation of this February, 1951 index.

In other words, the institution of four different license categories.

As for the problems that concern modeling rules which require a knowledge of aerodynamics and associated sciences —let the small group of experts who serve on the various committees at the AMA investigate and pass on proposals prior to their submission for voting. Let them have the power of veto regarding all proposals.

Mail Grab-Bag. News from all over. First, Bob Buragas, he of the lengthy but very interesting foregoing piece, says that plans are being formulated to provide the Jersey area with outdoor record trials, to secure an indoor site for record trials and to interest local sponsor groups in keeping their contributions in the area of their operations. New Jersey gents can reach B.B. at 311 Elmwood Ave., East Orange (ORange 5-6177) . . . Note to model photogs: rates have been raised for pictures used in Model Matters section! Five bucks per! . . . Short note from England's C.S. "Rushy" Rushbrooke: "I anticipate many radical changes in international contest competition, but matters are too nebulous at this stage to give any opinion which might lead to inaccurate forecasts. One matter has been definitely decided by the F.A.I. and that is certain classifications of some international events. They have limited international *championship* events to four classifications at present—rubber driven (Wakefield specification), gliders (Nordic A/2 spec), free flight power (2.5 cc. maximum engine capacity) and control line, both speed and stunt. The Aeromodeler is donating a trophy for international radio control, and it is possible this will be added to the international championship category. International contests for model aircraft can be organized by National Aero Clubs or other organizations but may not be termed 'championship' meetings. This is definitely a move toward my proposed 'Olympics' which would group all the championship meetings together at one venue each year, going round on a rota system to different countries. But more of this anon when the F.A.I. has met and discussed the matter."

A. LeQ. Hayden, 21, free flighter and sailplane modeler, 4, Hayling Avenue, Copnor, Portsmouth, Hampshire, England, is looking for pen-pal. . . . Pedro Ramos Garcia tells us the Club Aeromodelista de Mantanzas has been organized in Matanzas City, Cuba. Exhibitions have been held in the local ball park with stunt and scale ukies. If you're handy and want to join look him up at Independenica No. 174 and give Garcia a message from us: keep the news coming our way. . . . Another correspondent available from London, S.W. 19, England. Hez Phil B. Landray, of No. 5 Elms Court, Montague Rd., South Wimbledon (don't forget the LS.W.19E). Phil is a speed-stunt-team racing fan, 22, a member of the very active Croydon D.M.A.C. and has a terrific building program mapped out. . . . Big news next month in Air Trails! The Air Adventurers Club returns. Watch for the important announcement—March issue.

Hey, Senor! So you're a big North Americano and you think you belong to the world's best model club. Ha! Listen to our friend Herbert W. Gedge from Argentina. . . .

"My club, the Asociacion de Aeromodelistas Tuco Tuco, held its 100th contest!!!! [exclamation points by the editors] on the 28th-29th of October.

Since the club was founded on June 15, 1943 by 8 members it has run off 100 meets. I hope I am right in thinking such an event must be of interest to your readers."

Herb, you're 100% right!

"I have been informed the Tuco Tuco club is the only one in Latin America and perhaps even in America and Europe which has sponsored such a large number of competitions. Every month we hold events for free flight, gliders, rubber models, U-control, indoors, flying wings, solid model shows, meets for ladies only, jet and the special F.A.I. glider and rubber categories. We were the first club to hold jet contests—this was in 1944 and the entrants used gun powder!!!!! [you know whose exclamation points those are!]. Last year we added Jetex competition. I would like to point out that our flight totals in gas free flight are not too high since we have to make flights in non-thermal hours after 5 p.m. to avoid losing the motors.

"Up to the moment we have lost 410 rubber and glider models."

Herb—some recorder your club has. We understand that since 1943 your club has handed out 535 cups and 760 medals. This in the way of monthly awards; special cups and medals go to each year's high point champions in each category.

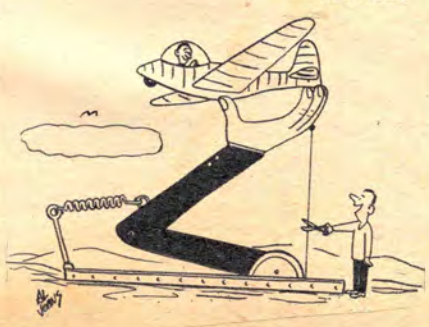
AATT has had one president since its inception, Juan Cartoceti; it currently boasts 490 *active* members! The club workshop complete with secretary is located at: Italia 1624 Martinez, F.C.N.B. Mitre.

The club has a sharp 6-color emblem decal. Green, blue and yellow AATT wings in center of silver oval with lettering in black and red.

Wanna Bet? Betcha the next Plymouth contest will have an event for the small fry similar to its 1950 Freshman class, but will set same up as a Team Event. Older enthusiasts will serve as official mechanic and advisor to young flyer.

Clarification. Reports Bill Effinger of Berkeley Models: "In the December issue of AT we advertised the fact that our Aerotrol set could be used on 27 mc. (for RC operation). We requested a deletion on this, but the issue went to press before we could catch it. The AMA has been conducting tests on the 27 mc. band to determine its desirability for license-free operation. When and if approved by the FCC all existing Aerotrol sets can be converted to that band which is now used license-free in England with much success. In the meantime we consider the 50-54 mc. band to be ideal for radio control work and all our sets will continue to be manufactured for this frequency until FCC license free operation is approved on 27 mc."

—"DOPESTER"



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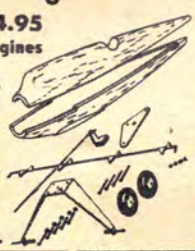

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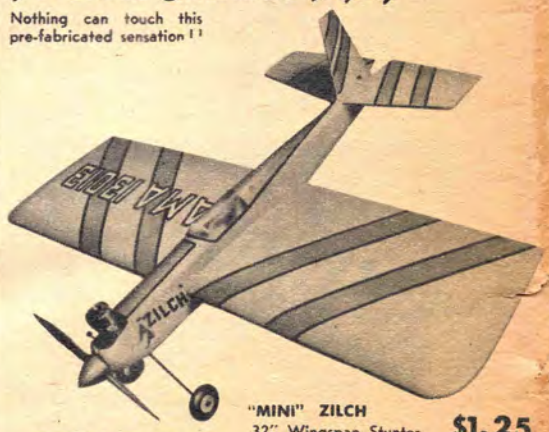

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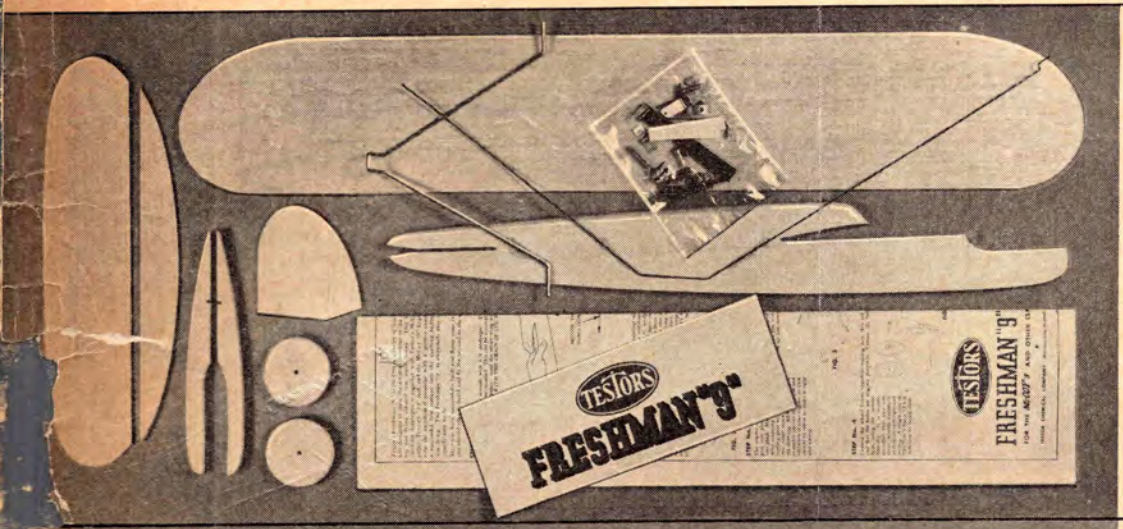

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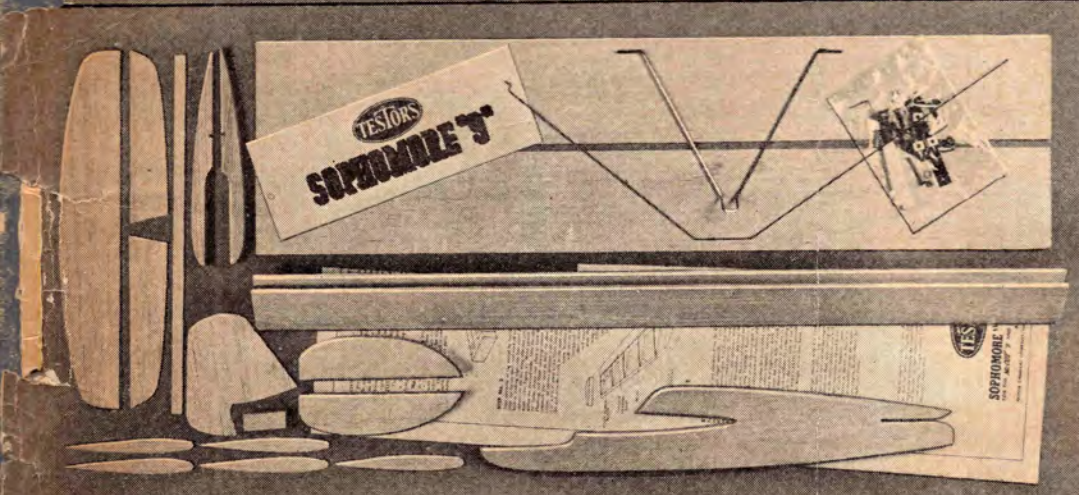

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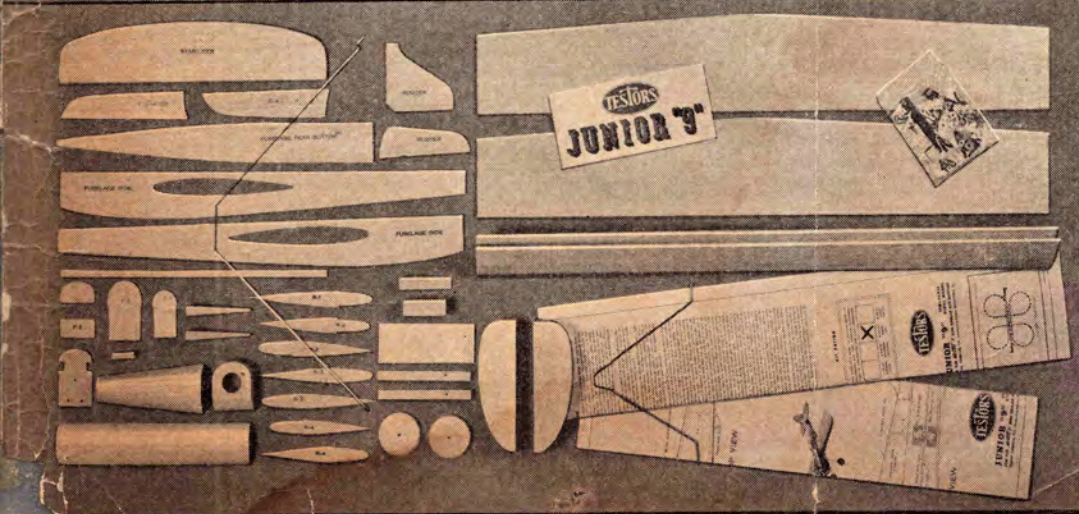

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